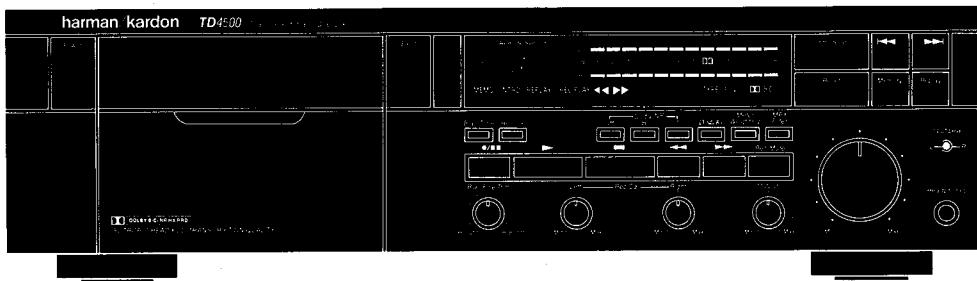


The Harman Kardon Model TD4500

Manual 163A

CD TRANSCRIPTION QUALITY CASSETTE DECK

Technical Manual



The following marks found in the parts list of this manual identify the models as follows.

- UA :North America area model
- BK :North America area Black version
- I :International model
- IB :International model Black version

TD4500

harman/kardon

240 Crossways Park West, Woodbury, N.Y. 11797
1112-3152163A6 P-119010 2000 Printed in Japan

SPECIFICATIONS

Track Configuration	Nominal	Limit	Nominal	Limit
4-track 2 Channel Stereo			Channel Separation	45dB
Cassette Deck			Crosstalk	70dB
• MECHANICAL SECTION			Record/Playback Distortion (Input 1kHz)	≥35dB ≥60dB
Record/Playback Tape Speed				
Drift 4.75cm/sec.	0.2% ±2.0%		LN	0.9% ≤2.0%
Wow and Flutter	0.045%(NAB)≤0.1%		CrO ₂	1.5% ≤3.0%
	0.07%(CCIR)		Metal	1.3% ≤2.0%
Take Up Torque	50gr.cm	35~70gr.cm	MPX Filter Attenuation	
Back Tension	4gr.cm	2~6gr.cm	at 15kHz	0.3dB ≤1dB
F.FWD Torque	100gr.cm	70~150gr.cm	at 19kHz	35dB ≥30dB
REW Torque	100gr.cm	70~150gr.cm	Erase Ratio (Input 80Hz)	
F.FWD/REW Time (C-60 Tape)	90sec.	≤100sec.	LN	70dB ≥60dB
			Metal	61dB ≥56dB
• AMPLIFIER SECTION			Input Sensitivity (Input 1kHz) at Line Input	45mV 40(min)~100(max)mV
Bias Frequency	105kHz±5kHz		Input Impedance (Input 1kHz) at Line Input	22kΩ 19(min)~30(max)kΩ
Playback Output	1150mV±1.5dB			
Signal-to-Noise Ratio at Line Input (Input 1kHz,100mV)			• DIMENSIONS(WxHxD)	17-3/8" x 5" x 12-5/8" (442 x 126 x 320 mm)
IHF-A WTD at Dolby Level				
Dolby NR off			• WEIGHT	13.4lbs(6.1kg)
	LN	51dB		
	CrO ₂	54dB	• POWER SUPPLY	AC120V, 60Hz
Dolby B NR	Metal	54dB	U.S.A. and Canada models	AC220V/240V,50/60Hz
	LN	61dB	International model	
	CrO ₂	64dB	• POWER CONSUMPTION	
Dolby C NR	Metal	64dB	U.S.A. and Canada models	28W
	LN	66dB	International model	30W
	CrO ₂	70dB		
	Metal	70dB		
			These specifications are service target specs.	
			Specifications and components are subject to change without notice.	
			Overall performance will be maintained or improved.	

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LEAKAGE TEST (FOR SERVICE ENGINEERS IN THE U.S.A.)

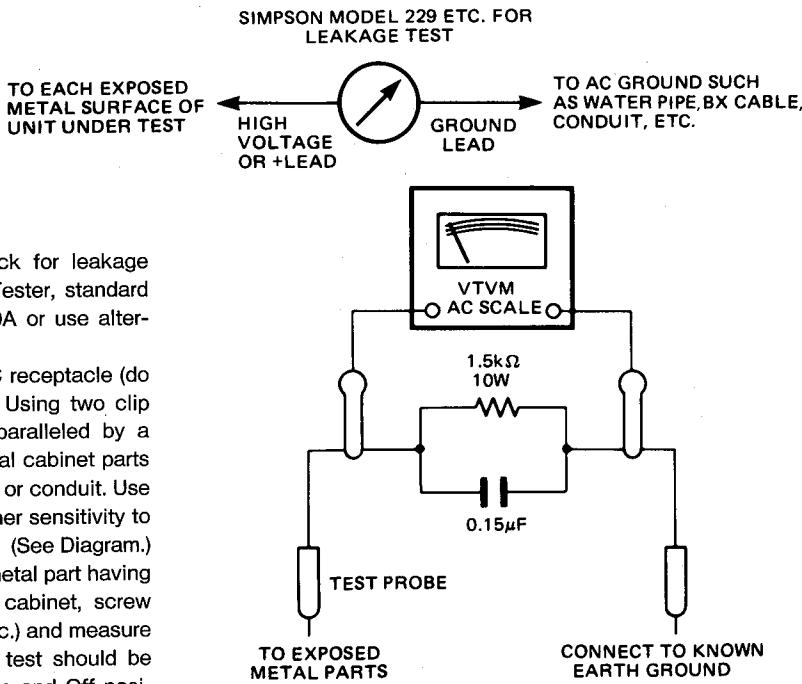
Before returning the unit to the user, perform the following safety checks:

1. Inspect all lead dress to make certain that leads are not pinched or that hardware is not lodged between the chassis and other metal parts in the unit.
 2. Replace all protective devices such as nonmetallic control knobs, insulating fishpapers, cabinet backs, or shields, isolation resistorcapacitor networks, mechanical insulators, etc.
 3. Be sure that no shock hazard exists; check for leakage current using Simpson Model 229 Leakage Tester, standard equipment item No.21641, RCA Model WT540A or use alternate method as follows:

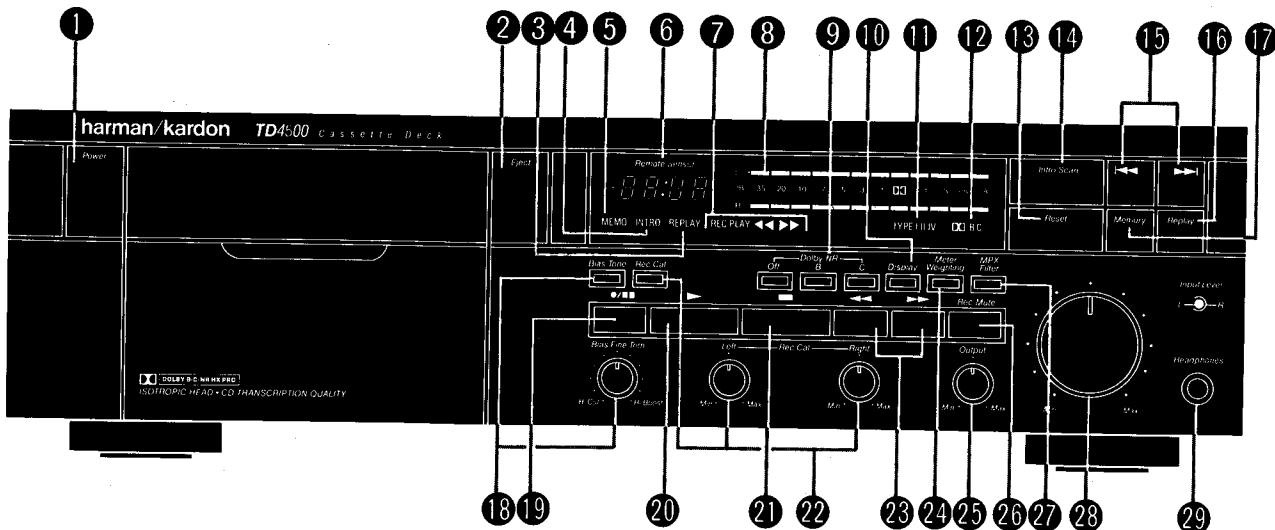
TO EACH EXPOSED
METAL SURFACE
UNIT UNDER TEST

Plug the AC line cord directly into a 120-volt AC receptacle (do not use an Isolation Transformer for this test). Using two clip leads, connect a 1500 ohm, 10-watt resistor paralleled by a $0.15\mu F$ capacitor, in series with all exposed metal cabinet parts and a known earth ground, such as a water pipe or conduit. Use a VTVM or VOM with 1000 ohms per volt, or higher sensitivity to measure the AC voltage drop across the resistor. (See Diagram.) Move the resistor connection to each exposed metal part having a return path to the chassis (antenna, metal, cabinet, screw heads, knobs and control shafts, escutcheon, etc.) and measure the AC voltage drop across the resistor. (This test should be performed with the power switch in both the On and Off positions.)

A reading of 0.35 volt RMS or more is excessive and indicates a potential shock hazard which must be corrected before returning the unit to the owner.



CONTROLS AND FUNCTIONS



1 POWER SWITCH

Press to turn unit on or off.

2 EJECT

Press to load or remove tape cassette.

3 REPLAY

Indicates Replay is engaged.

4 INTRO

Indicates Intro Scan is engaged.

5 MEMO

Indicates Memory is engaged.

6 COUNTER

Indicates tape position in minutes and seconds.

7 REC PLAY << >>

Displays operating mode: Record, Play, Rewind or Fast Forward.

8 LEVEL METER

Shows signal level.

9 DOLBY*NR

OFF

Press to play or record without Dolby Noise Reduction.

B

Press to play or record using Dolby B NR.

C

Press to play or record using Dolby C NR.

10 DISPLAY

Press to turn display panel on or off.

11 TYPE I II IV

Automatically indicates type of tape in use.

12 DOLBY B C NR

Shows if Dolby B or C NR circuits are on.

13 RESET

Resets Counter to 00:00.

14 INTRO SCAN

Previews each segment on a pre-recorded tape.

15 SKIP REVERSE/SKIP FORWARD

Locates the start of any desired segment on a pre-recorded tape.

16 REPLAY

Press on: when tape reaches end, deck automatically rewinds to start and begins Play.

17 MEMORY

Press on: when << is pressed, tape rewinds to approximately 00:00 on Counter.

18 BIAS TONE/BIAS FINE TRIM

Adjusts when recording.

19 RECORD/PAUSE

Puts cassette deck in Record ready or Pause mode.

20 PLAY

Begins playback or recording.

21 STOP

Stops tape transport in any mode.

22 REC CAL

Adjust when recording using Dolby Noise Reduction.

23 REWIND/FAST FORWARD

Rapidly rewinds or advances tape.

24 METER WEIGHTING

Allows for easy setting of optimum record levels.

25 OUTPUT

Adjusts output level to headphones and receiver, pre-amp. or integrated amplifier.

26 RECORD MUTE

Inserts blank space when recording.

27 MPX FILTER

Press when using Dolby Noise Reduction while recording FM stereo broadcasts.

28 INPUT LEVEL

Adjusts recording level and balance.

29 HEADPHONES

Insert headphone plug.

*** NOTE**

Dolby noise reduction and HX Pro headroom extension manufactured under license from Dolby Laboratories Licensing Corporation. HX Pro originated by Bang & Olufsen.

"DOLBY", the double-D symbol  and "HX PRO" are trademarks of Dolby Laboratories Licensing Corporation.

DISASSEMBLY PROCEDURES (REFER TO PAGES 9, 10 and 11)

[1] CABINET TOP (133) REMOVAL

Remove 4 screws (A) and 2 screws (B), and then remove the Cabinet Top (133).

[2] FRONT PANEL ASSEMBLY (AA) REMOVAL

1. Remove the Cabinet Top (133). (Refer to step 1.)
2. Remove the Plate with window (140 and 143).
3. Remove 5 rotary knobs (151, 145 and 148) and the nut.
4. Disconnect CN903 from CN803 on the Main P. C. Board (PCB-1).
5. Remove 7 screws (C) .
6. While disconnecting CN801 and CN802, remove the Front Panel Assembly (AA).

[3] CASSETTE TAPE RECORDER MECHANISM ASSEMBLY REMOVAL

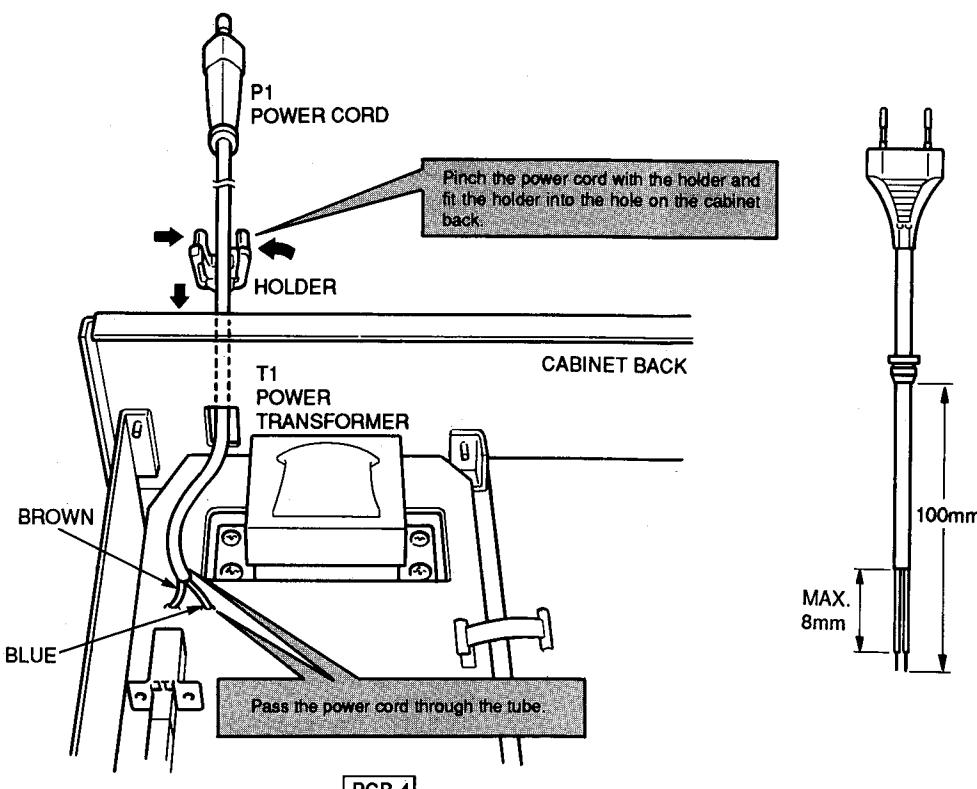
1. Remove the Front Panel Assembly (AA). (Refer to step 2.)
2. Disconnect LCN801, LCN802 and LCN803 on the Cassette Tape Recorder Mechanism Assembly.
3. Disconnect CN301 and CN105 connected to the Main P. C. Board (PCB-1).
4. Remove the spring (179).
5. Remove 4 screws (D) and then remove the Cassette Tape Recorder Mechanism Assembly.

[4] HEADPHONE P. C. BOARD (PCB-4) REMOVAL

Remove the screw (E) and then remove the Headphone P. C. Board (PCB-5).

POWER CORD REPLACEMENT (FOR SERVICE ENGINEERS OTHER THAN NORTH AMERICA)

In order to prevent fire shock hazard when replacing the power cord, follow the Procedure below to replace the part with the standard supply parts.



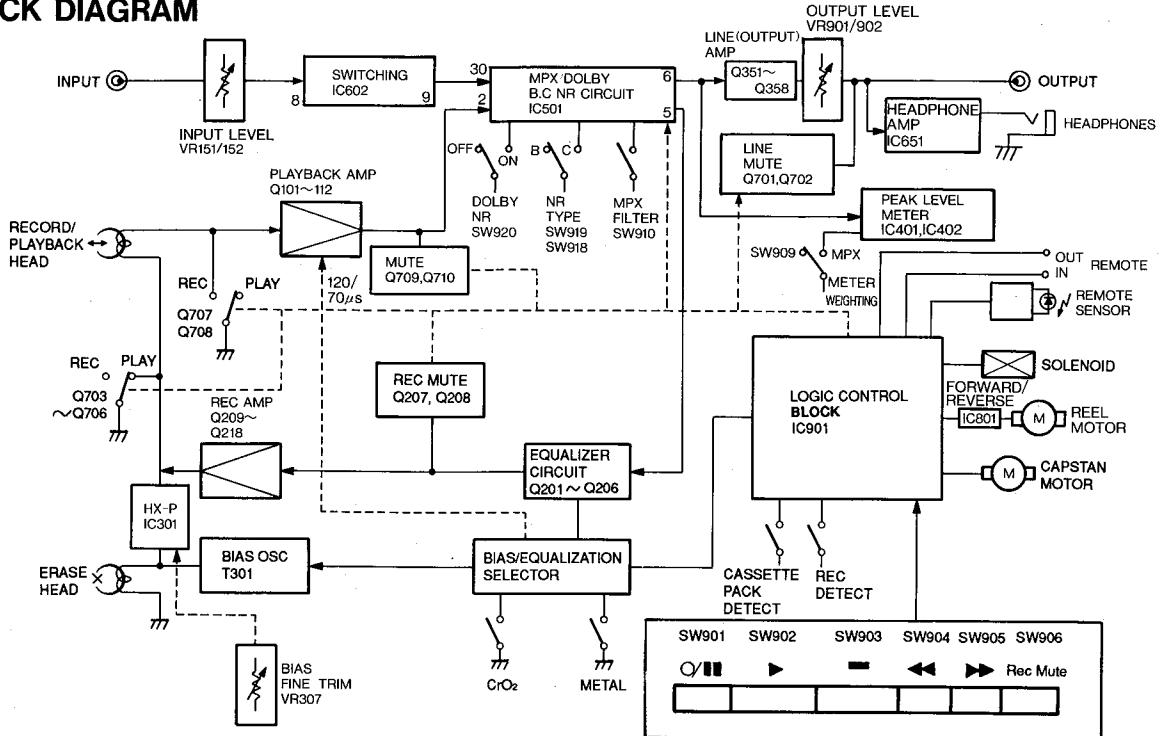
[5] MAIN P. C. BOARD (PCB-1) REMOVAL

1. Remove the Cabinet Top (133). (Refer to step 1.)
2. Disconnect LCN801, LCN802 and LCN803.
3. Disconnect CN301 and CN105 on the Main P. C. Board (PCB-1), which are connected to the Cassette Tape Recorder Mechanism Assembly.
4. Disconnect CN801, CN802 and CN803 connected to the Front P. C. Board (PCB-2).
5. Open the lid of CN101, CN102, CN103 and CN104 on the Power P. C. Board (PCB-5) and then disconnect JP101, JP102, JP103 and JP104.
6. Remove the screw (F) and the metal fitting (164).
7. Disconnect CN501 and CN502 and then remove the Dolby B/C NR P. C. Board (PCB-3) from the Main P. C. Board (PCB-1).
8. Remove 8 screws (G) and then remove the Main P. C. Board (PCB-1).

[6] OTHER P. C. BOARDS REMOVAL

1. Remove the Front Panel Assembly (AA). (Refer to step 2.)
2. Remove 8 screws (H) and 3 screws (I), then remove the Front P. C. Board (PCB-2).
3. Remove 4 screws (J) and then remove the Power P. C. Board (PCB-4). If necessary, disconnect the connectors.

BLOCK DIAGRAM



CIRCUIT DESCRIPTION

PLAYBACK SIGNAL

The signal from the playback head is amplified by the playback amplifier Q101, Q103, Q105, Q107, Q109 and Q111 (L ch.), and is applied to the pins 2 (L ch.) and 29 (R ch.) of the Dolby NR IC501 (B/C type). Switching of the playback signal from the record mode (external input signal) to the playback mode is performed inside IC501.

IC501 is usually switched to the playback mode. However, the control signal transmitted to the pin 5 of IC501 from IC901 through Q505 and Q506 switches IC501 from the record mode to the playback mode. The input signal to IC501 is output from the pins 6 (L ch.) and 25 (R ch.) and applied to the OUTPUT AMP., HEADPHONES jack amplified by the headphone amplifier IC651 and the PEAK LEVEL METER circuit. The characteristics of the playback equalizer are defined by the BIAS/EQUALIZATION switch and are selected and specified in Q113 (L ch.) and Q114 (R ch.).

RECORD SIGNAL

The signal from the INPUT jack is controlled by the INPUT LEVEL control. It is applied to the pins 8 (L ch.) and 4 (R ch.) of the Switching IC602 and the pins 30 (L ch.) and 1 (R ch.) of the Dolby NR IC501 (B/C type). Switching of the record signal from the playback mode to the record mode is performed inside IC501. The control signal transmitted to the pin 5 of IC501 from IC901 through Q505 and Q506 switches IC501 from the playback mode to the record mode.

The input signal to the Dolby NR IC is output from the pins 28 (L ch.) and 3 (R ch.) of IC501 and passes through the MPX filter. Then it is input to the pins 27 (L ch.) and 4 (R ch.) and is output from the pins 24 (L ch.) and 7 (R ch.). The encoded signal is input to the pins 23 (L ch.) and 8 (R ch.) and then it is output from the pins 18 (L ch.) and 13 (R ch.). The signal output from IC501 passes through the record equalizer circuit and is amplified by the record amplifier of Q209, Q211, Q213, Q215 and Q217.

(L ch.), Q210, Q212, Q214, Q216, and Q218 (R ch.). The amplified signal is then applied to the recording head after being synthesized by a bias signal.

MUTING OPERATION

The signal that mutes the sound produced at switching to recording or playback is applied from IC901 of the logic control block.

When the "STOP" button is pressed, the mute signal output from the pin 28 of IC901 turns ON Q701 (L ch.) and Q702 (R ch.) to short-circuit the output signals of the playback amplifiers for muting. For the purpose of preventing generation of noise at power ON/OFF, the mute signal is output from Q51. The muting is done by short circuiting the output signal with Q701 (L ch.) and Q702 (R ch.) turned ON.

LOGIC FOR RECORD MODE

When the "REC" button is pressed, the pin 27 of IC901 becomes high level and Q709 (L ch.) and Q710 (R ch.) turn ON. The input to the Dolby NR IC is muted. Also Q715 and Q714 turn ON and Q713 turns OFF. Therefore Q703, Q705 (L ch.) and Q704, Q706 (R ch.) turn OFF to release the muting of the outputs from the record amplifiers.

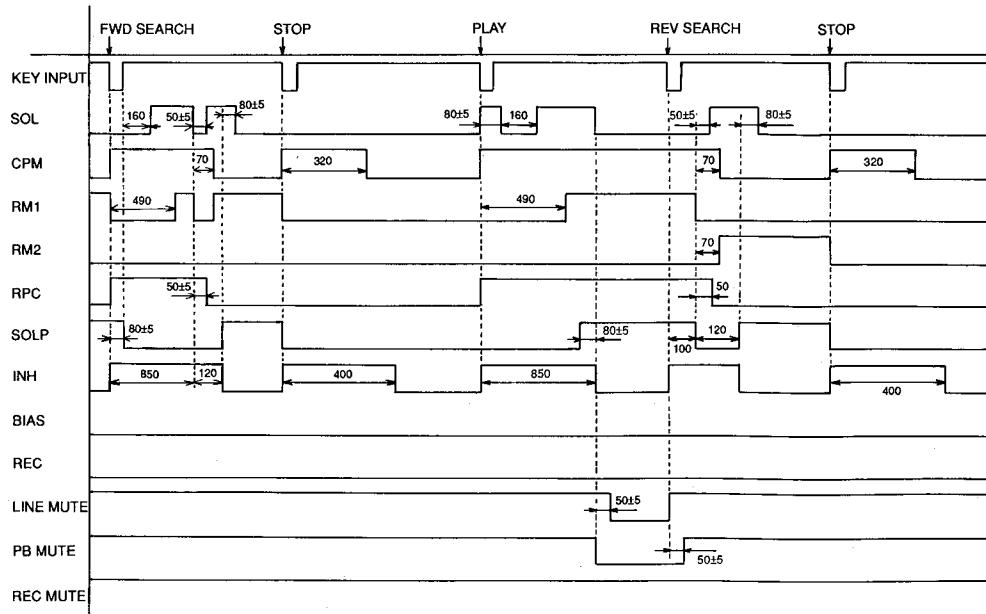
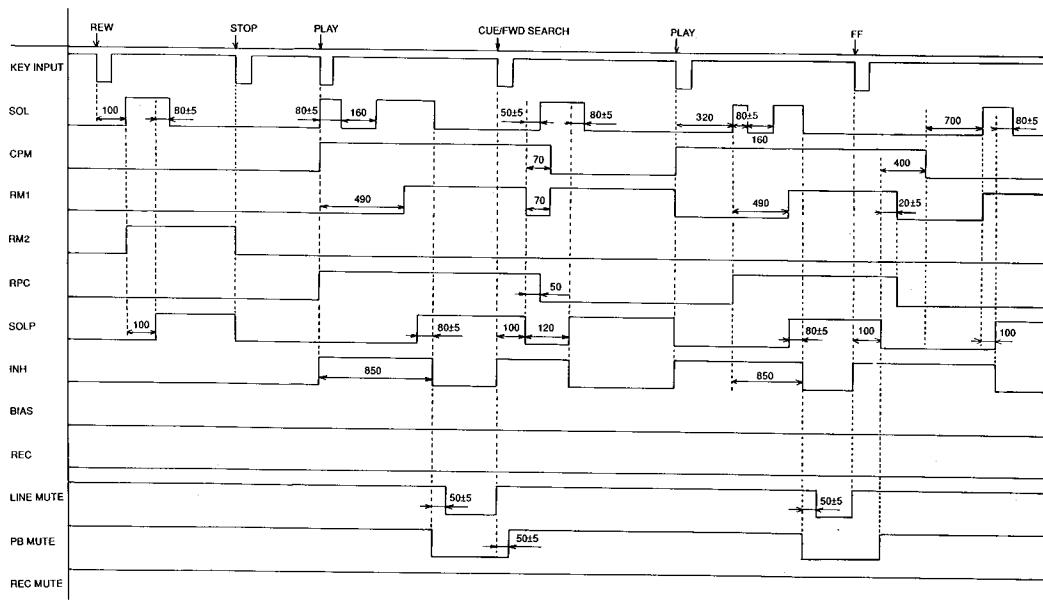
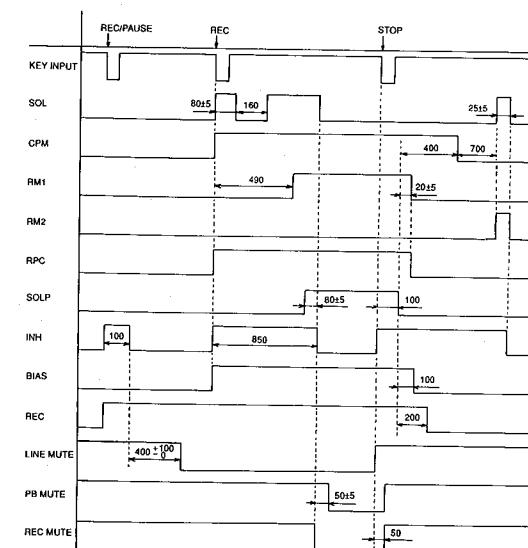
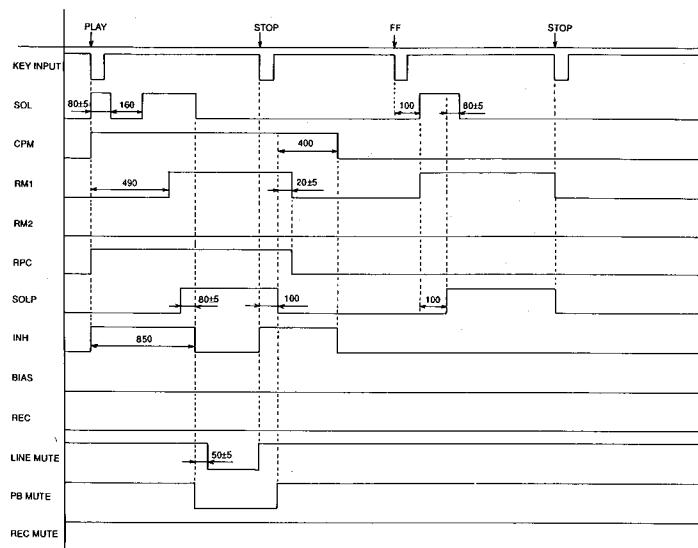
Also, Q505 turns ON and Q506 turns OFF to make the pin 5 of IC501 high level. Therefore the mode is switched to the record mode.

LOGIC FOR RECORD TO PLAYBACK MODE

When the "STOP", "PAUSE" or "PLAY" button is pressed, the pin 26 of IC901 becomes high level. Q219 turns ON and Q207 (L ch.), Q208 (R ch.) turn ON to mute the inputs to the record amplifiers. Also, Q715 and Q714 turn OFF and Q713 turns ON to turn ON Q703, Q705 (L ch.) and Q704, Q706 (R ch.). Therefore the outputs from the record amplifiers are muted.

Also, Q505 turns OFF and Q506 turns ON to make the pin 5 of IC501 low level. Therefore the mode is switched to the playback mode.

TIMING CHART



ALIGNMENT PROCEDURES (REFER TO PAGES 12, 13, 21, 22 AND 23)

CASSETTE MECHANISM CONFIRMATION

Make sure to confirm conditions of the cassette mechanism as follows before adjustment.

1. Confirmation of erase prevention function

- The switch should turn ON when a tape with erroneous erase preventive pawl is inserted. (Use a tape which is 0.2mm smaller than the minimum size of 62.9mm or a MAZ-0184-C gauge one.)
- When the switch arm is moved back gradually from the ON position, the switch should turn OFF.

2. Confirmation of cassette pack detection function

- The switch should turn ON when a tape is inserted. (Use a tape whose minimum size is 63.5mm or a MAZ-0184-C gauge one.)
- When the switch arm is moved back gradually from the ON position, the switch should turn OFF.

3. Confirmation of eject function

- The cassette compartment opens smoothly and no abnormal noise should be heard while opening and closing.
- The eject lock arm opens smoothly without contacting the chassis and damper.
- The eject button can not be pressed during playback.

4. Confirmation of playback, fast forward and rewind functions

- The torque used in each of the playback, fast forward and rewind modes should be within specification.
- Playback 35gr.cm ~ 70gr.cm
- FastForward 70gr.cm ~ 150gr.cm
- Rewind 70gr.cm ~ 150gr.cm
- No abnormal noise should be heard during operation in any mode. The solenoid switching sound should not be considered as a noise.

5. Confirmation of positions of record/playback head and erase head

- Head height
 - Set the M-300 head gauge.
 - Set the unit in the playback mode and place the adjustment chip on the head gauge as shown in the Fig. 1.
 - The adjustment chip should not contact the tape guide of both record/playback head and erase head.

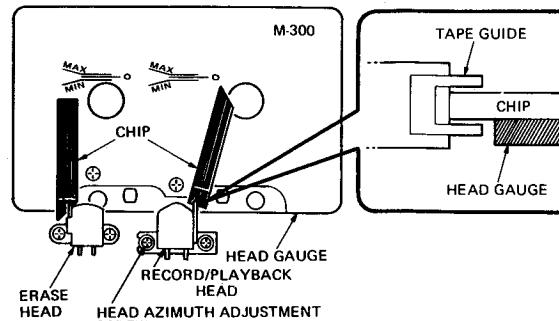


Fig. 1

• Head position

- Set the M-300 head gauge.
- Set the unit in the playback mode and place the adjustment chip on the head gauge as shown in the Fig. 2.
- With both record/playback head and erase head, the adjustment chip should be between MIN and MAX of the M-300 head gauge.

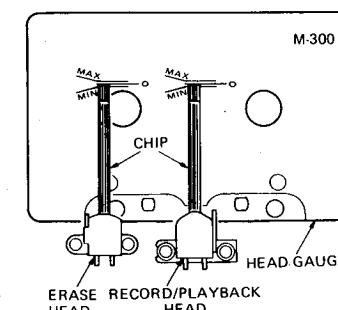


Fig. 2

ELECTRICAL ADJUSTMENT AND CONFIRMATION

1. Before adjustment

- Before electrical adjustment, make sure that confirmations of the cassette mechanism are all completed.
- After the power switch is pushed on, wait for 10 minutes before measuring to be sure of the most stable operation.
- Since head magnetization, dust accumulations, etc. are likely to introduce errors in the various characteristics, it is very important that the heads are properly demagnetized and cleaned before commencing any adjustment, particularly frequency response and head azimuth adjustment.

2. Instruments required

- Low frequency oscillator
- AC VTVM or dual channel AC VTVM
- Oscilloscope
- Wow/flutter meter
- Frequency counter
- Distortion meter

3. Test tapes

- Azimuth adjustment MTT-114 or TCC-153
- Tape speed adjustment MTT-111DN or TCC-112
- Playback output level adjustment MTT-150 or TCC-130
- Music search adjustment SCC-1425
- Playback frequency characteristic confirmation TCC-1216 or TCC-162C and TCC-262C
- Reference tapes
 - LN SCC-502
 - CrO₂ SCC-1360
 - METAL SCC-565

Note:

C-90 differs with C-60 in the thickness and bias is of unequal, so adjust with the tape whose bias is of specified value.

4. General conditions (unless otherwise noted)

Controls and Switches	Settings
Dolby NR	Off
Input Level	Maximum
MPX Filter	Off
Bias Fine Trim	Center
Balance	Center

Azimuth Adjustment

When the maximum level point of R channel does not equal that L channel, connect the oscilloscope as shown in Fig. 3 and proceed with azimuth adjustment so that L and R channels are in phase.

- Connect L channel tape out to "X (or V)" and R channel to "Y (or H)". Observe the lissajous waveform.
- Set L and R channels to monaural. Adjust vertical and horizontal gain so that the waveform becomes 45 degree.
- Adjust azimuth so that the measurement of "a" becomes maximum and the measurement of "b" becomes minimum against the 45 degree line.

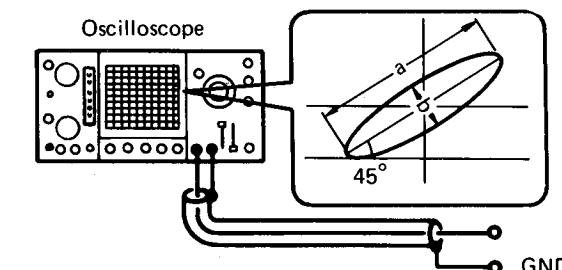
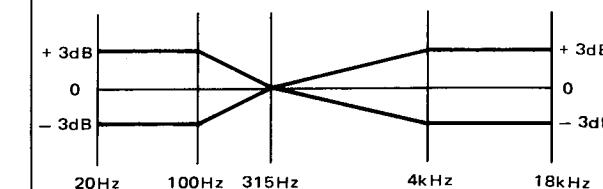
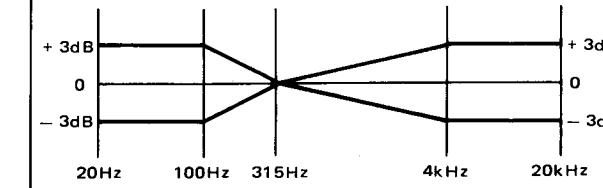


Fig. 3

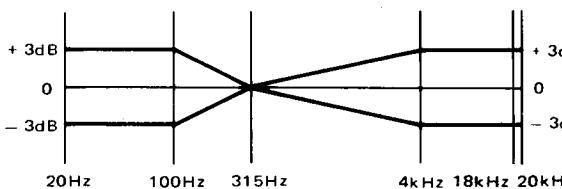
PLAYBACK FREQUENCY CHARACTERISTIC TEST TAPE: TCC-162C, TCC-262C



RECORD/PLAYBACK FREQUENCY CHARACTERISTIC TEST TAPE: SCC-502, SCC-1360, SCC-565 DOLBY NR: TYPE B ON



RECORD/PLAYBACK FREQUENCY CHARACTERISTIC TEST TAPE: SCC-502, SCC-1360, SCC-565 DOLBY NR: TYPE B ON



RECORD/PLAYBACK FREQUENCY CHARACTERISTIC TEST TAPE: SCC-502, SCC-1360, SCC-565 DOLBY NR: OFF

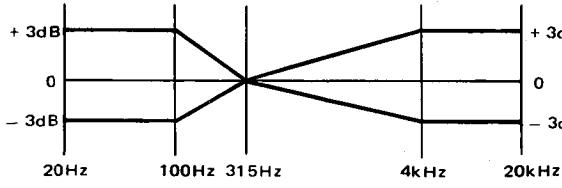


Fig. d

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b) Head position

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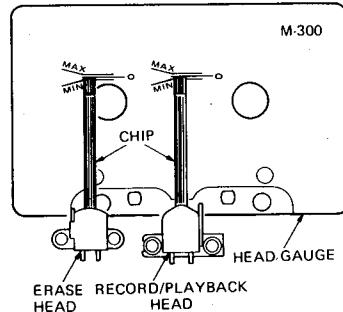


Fig. 2

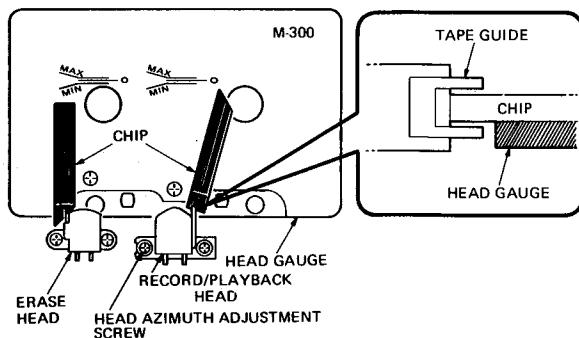


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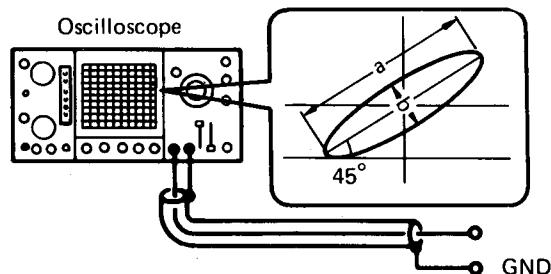
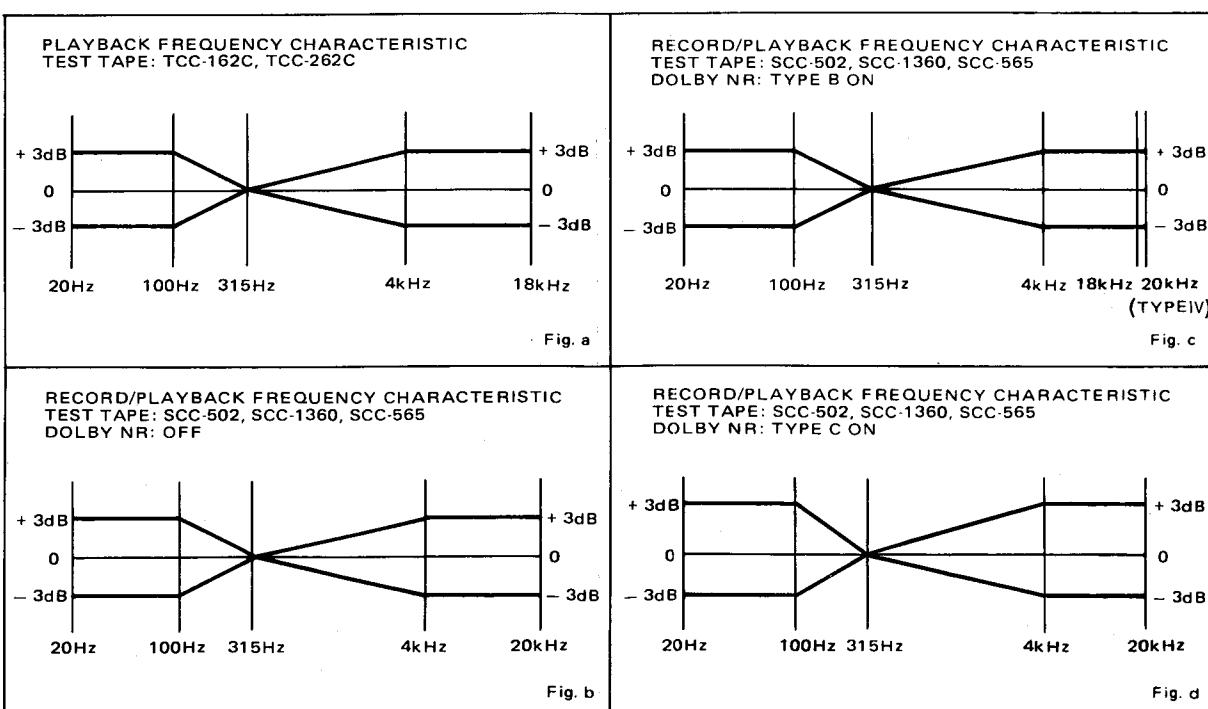


Fig. 3



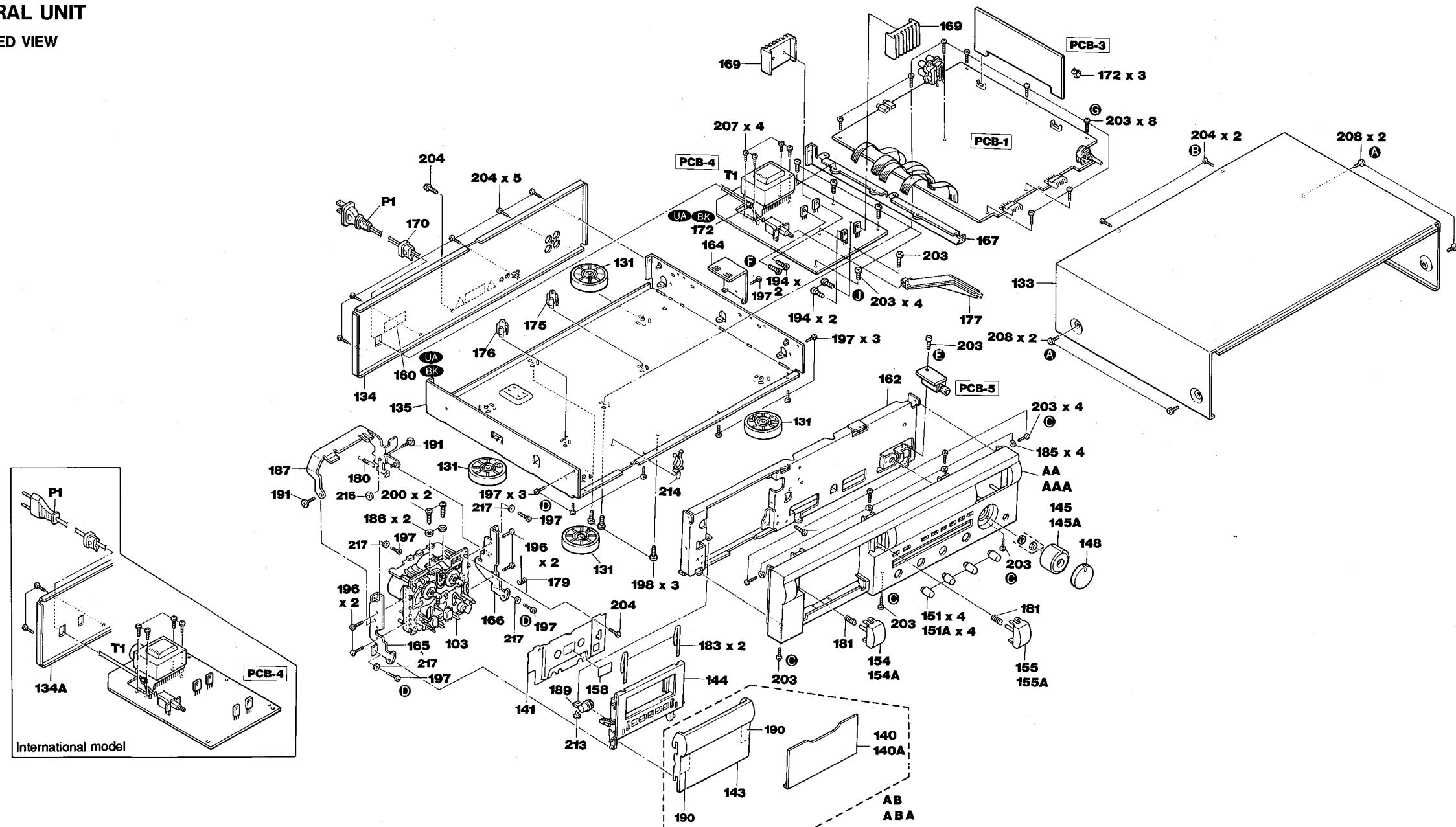
Step	Alignment	Instrument Required	Input Signal	Mode	Test Point	Adjustment	For
1	Azimuth	VTVM Oscilloscope Test tape (MTT-114 or TCC-153)		PB	TP501 (Lch), GND TP502 (Rch), GND or OUTPUT jack	Azimuth screw	Maximum output Refer to "Azimuth Adjustment" on page 7.
2	Tape speed	Frequency counter Test tape (MTT-111DN or TCC-112)		PB	TP501 (Lch), GND TP502 (Rch), GND	VR (built in motor)	3000Hz ± 10Hz Adjust at the center of test tape.
3	Playback output level	VTVM Test tape (MTT-150 or TCC-130)		PB	TP501 (Lch), GND TP502 (Rch), GND	VR101 (Lch) VR102 (Rch)	388mV Tape selector is LN position.
4	Record calibration tone			REC/PAUSE Rec. Cal. (SW921) ON	TP501 (Lch), GND TP502 (Rch), GND	VR602	388mV
5	Bias tone			REC/PAUSE Bias tone (SW907) ON	TP501 (Lch), GND	VR603	388mV -20dB (39mV about 400Hz)
					TP502 (Rch), GND	VR601	388mV -20dB (39mV about 12.5kHz)
6	Music search	Oscilloscope Test tape (SCC-1425)		FORWARD SEARCH	TP751, GND	VR751	1.6±0.05V
7	Playback frequency characteristic confirmation	VTVM Test tape (TCC-1216 or TCC-162C and TCC-262C)		PB	TP501 (Lch), GND TP502 (Rch), GND or OUTPUT jack	R133, R134	Unsolder a resistor of R133 or R134 so that the frequency response is within the range as shown in Fig. a.
8	Bias frequency confirmation	Frequency counter		REC/PB	TP101 (Lch), GND TP102 (Rch), GND	T301	105kHz ± 3kHz Tape selector is METAL position.
9	Dolby HX PRO			REC/PB	TP101 (Lch), GND TP102 (Rch), GND	L301 L302	Maximum output Tape selector is METAL position. After adjustment for L301 and L302, set bias fine trim (VR301 and VR302) to the center position.
10	Bias trap	VTVM		REC/PB	TP201 (Lch), GND TP202 (Rch), GND	LC201, LC202 LC203, LC204	Minimum output Tape selector is METAL position.
11	1 2 3 Bias level (pre-adjustment)	VTVM		REC/PB	TP101 (Lch), GND TP102 (Rch), GND	VR301 VR302	40mV Tape selector is METAL position.
						VR305 VR306	25mV Tape selector is CrO ₂ position.
						VR303 VR304	15mV Tape selector is LN position.
12	Record level (pre-adjustment)	VTVM Blank tapes CrO ₂ SCC-1360 METAL SCC-565 LN SCC-502	Apply 1kHz signal to INPUT jack. Set INPUT LEVEL knob so that TP501 and TP502 to GND voltage is 388mV in REC-PAUSE mode.	REC/PB	TP501 (Lch), GND TP502 (Rch), GND	VR203, VR204 VR301, VR302	388mV Tape selector is METAL position. Adjust VR301 and VR302 so that the distortion becomes 1.0%~1.4%
						VR305, VR306 (CrO ₂) VR303, VR304 (LN)	388mV Adjust VR305 and VR306 so that the distortion becomes 1.3% (CrO ₂). Adjust VR303 and VR304 so that the distortion becomes 1.0% (LN). This confirmation should be at each tape selector position.
13	1 2 3 Record/playback equalizer frequency characteristic	VTVM Blank tapes CrO ₂ SCC-1360 METAL SCC-565 LN SCC-502	Apply 1kHz signal to INPUT jack. Set INPUT LEVEL knob so that TP501 and TP502 to GND voltage is 25dB below 388mV in REC-PAUSE mode. Then adjust with a 20Hz to 30kHz sweep signal.	REC/PB	OUTPUT jack	VR305, VR306 L201, L202 (VR301, VR302)	So that the record/playback frequency response is flat (at least within the range in Fig. b). Tape selector is CrO ₂ position.
						VR301 VR302	So that the record/playback frequency response is flat (at least within the range in Fig. b). Tape selector is METAL position.
						VR305, VR306 L201, L202 (VR301, VR302)	So that the record/playback frequency response is flat (at least within the range in Fig. b). Tape selector is LN position.
14	Record level	VTVM Blank tapes CrO ₂ SCC-1360 METAL SCC-565 LN SCC-502	Set INPUT LEVEL knob so that TP501 and TP502 to GND voltage is 388mV in REC-PAUSE mode.	REC/PB	TP501 (Lch), GND TP502 (Rch), GND	VR203 VR204	388mV Perform adjustment using CrO ₂ . Perform checking only for LN and METAL tapes.
15	Meter level	VTVM	Apply 1kHz signal to INPUT jack. Set INPUT LEVEL knob so that TP501 and TP502 to GND voltage is 1.5dB below 388mV.	REC/PAUSE	PEAK LEVEL METER	VR401 VR402	Confirm peak level meter reads: -1dB.
16	MPX filter characteristic confirmation	VTVM	Apply 19kHz, 15kHz and 1kHz signal to INPUT jack. Set INPUT LEVEL knob so that TP501 and TP502 to GND voltage is 388mV.	REC/PAUSE MPX filter ON	TP501 (Lch), GND TP502 (Rch), GND or OUTPUT jack	LC501 LC502	Adjust for -0.3dB at 15kHz and >30dB at 19kHz.
17	Record/playback equalizer frequency characteristic confirmation	VTVM Blank tapes CrO ₂ SCC-1360 METAL SCC-565 LN SCC-502	Apply 400Hz signal to INPUT jack. Set INPUT LEVEL knob so that TP501 and TP502 to GND voltage is 25dB below 388mV in REC-PAUSE mode. Then adjust with a 20Hz to 30kHz sweep signal.	REC/PB	OUTPUT jack		Perform checking with Dolby B and C NR ON at each tape selector position. Confirm the record/playback frequency characteristic is within ± 3dB at 20Hz to 20kHz.

Step	Alignment	Instrument Required	Input Signal
1	Azimuth	VTVM Oscilloscope Test tape (MTT-114 or TCC-153)	PB
2	Tape speed	Frequency counter Test tape (MTT-111DN or TCC-112)	PB
3	Playback output level	VTVM Test tape (MTT-150 or TCC-130)	PB
4	Record calibration tone		R R (S)
5	Bias tone		R B (S)
6	Music search	Oscilloscope Test tape (SCC-1425)	FS S
7	Playback frequency characteristic confirmation	VTVM Test tape (TCC-1216 or TCC-162C and TCC-282C)	P
8	Bias frequency confirmation	Frequency counter	R
9	Dolby HX PRO		R
10	Bias trap	VTVM	R
11 1 2 3	Bias level (pre-adjustment)	VTVM	P
12	Record level (pre-adjustment)	VTVM Blank tapes CrO ₂ SCC-1360 METAL SCC-565 LN SCC-502	Apply 1kHz signal to INPUT jack. Set INPUT LEVEL knob so that TP501 and TP502 to GND voltage is 388mV in REC-PAUSE mode.
13 1 2 3	Record/playback equalizer frequency characteristic	VTVM Blank tapes CrO ₂ SCC-1360 METAL SCC-565 LN SCC-502	Apply 1kHz signal to INPUT jack. Set INPUT LEVEL knob so that TP501 and TP502 to GND voltage is 25dB below 388mV in REC-PAUSE mode. Then adjust with a 20Hz to 30kHz sweep signal.
14	Record level	VTVM Blank tapes CrO ₂ SCC-1360 METAL SCC-565 LN SCC-502	Set INPUT LEVEL knob so that TP501 and TP502 to GND voltage is 388mV in REC-PAUSE mode.
15	Meter level	VTVM	Apply 1kHz signal to INPUT jack. Set INPUT LEVEL knob so that TP501 and TP502 to GND voltage is 1.5dB below 388mV.
16	MPX filter characteristic confirmation	VTVM	Apply 19kHz, 15kHz and 1kHz signal to INPUT jack. Set INPUT LEVEL knob so that TP501 and TP502 to GND voltage is 388mV.
17	Record/playback equalizer frequency characteristic confirmation	VTVM Blank tapes CrO ₂ SCC-1360 METAL SCC-565 LN SCC-502	Apply 400Hz signal to INPUT jack. Set INPUT LEVEL knob so that TP501 and TP502 to GND voltage is 25dB below 388mV in REC-PAUSE mode. Then adjust with a 20Hz to 30kHz sweep signal.

Mode	Test Point	Adjustment	For	
PB	TP501 (Lch), GND TP502 (Rch), GND or OUTPUT jack	Azimuth screw	Maximum output Refer to "Azimuth Adjustment" on page 7.	
PB	TP501 (Lch), GND TP502 (Rch), GND	VR (built in motor)	3000Hz ± 10Hz Adjust at the center of test tape.	
PB	TP501 (Lch), GND TP502 (Rch), GND	VR101 (Lch) VR102 (Rch)	388mV Tape selector is LN position.	
REC/PAUSE Rec. Cal. (SW921) ON	TP501 (Lch), GND TP502 (Rch), GND	VR602	388mV	
REC/PAUSE Bias tone (SW907) ON	TP501 (Lch), GND	VR603	388mV -20dB (39mV about 400Hz)	
	TP502 (Rch), GND	VR601	388mV -20dB (39mV about 12.5kHz)	
FORWARD SEARCH	TP751, GND	VR751	1.6±0.05V	
PB	TP501 (Lch), GND TP502 (Rch), GND or OUTPUT jack	R133, R134	Unsolder a resistor of R133 or R134 so that the frequency response is within the range as shown in Fig. a.	
REC/PB	TP101 (Lch), GND TP102 (Rch), GND	T301	105kHz ± 3kHz Tape selector is METAL position.	
REC/PB	TP101 (Lch), GND TP102 (Rch), GND	L301 L302	Maximum output Tape selector is METAL position. After adjustment for L301 and L302, set bias fine trim (VR301 and VR302) to the center position.	
REC/PB	TP201 (Lch), GND TP202 (Rch), GND	LC201, LC202 LC203, LC204	Minimum output Tape selector is METAL position.	
so that SE	REC/PB	TP101 (Lch), GND TP102 (Rch), GND	VR301 VR302	40mV Tape selector is METAL position.
			VR305 VR306	25mV Tape selector is CrO ₂ position.
			VR303 VR304	15mV Tape selector is LN position.
so that SE	REC/PB	TP501 (Lch), GND TP502 (Rch), GND	VR203, VR204 VR301, VR302	388mV Tape selector is METAL position. Adjust VR301 and VR302 so that the distortion becomes 1.0%~1.4%
			VR305, VR306 (CrO ₂) VR303, VR304 (LN)	388mV Adjust VR305 and VR306 so that the distortion becomes 1.3% (CrO ₂). Adjust VR303 and VR304 so that the distortion becomes 1.0% (LN). This confirmation should be at each tape selector position.
so that in REC-	REC/PB	OUTPUT jack	VR305, VR306 L201, L202 (VR301, VR302)	So that the record/playback frequency response is flat (at least within the range in Fig. b). Tape selector is CrO ₂ position.
			VR301 VR302	So that the record/playback frequency response is flat (at least within the range in Fig. b). Tape selector is METAL position.
			VR305, VR306 L201, L202 (VR301, VR302)	So that the record/playback frequency response is flat (at least within the range in Fig. b). Tape selector is LN position.
so that	REC/PB	TP501 (Lch), GND TP502 (Rch), GND	VR203 VR204	388mV Perform adjustment using CrO ₂ . Perform checking only for LN and METAL tapes.
so that	REC/PAUSE	PEAK LEVEL METER	VR401 VR402	Confirm peak level meter reads: - 1dB.
INPUT 388mV. -ON	REC/PAUSE MPX filter -ON	TP501 (Lch), GND TP502 (Rch), GND or OUTPUT jack	LC501 LC502	Adjust for -0.3dB at 15kHz and >30dB at 19kHz.
so that in REC-	REC/PB	OUTPUT jack		Perform checking with Dolby B and C NR ON at each tape selector position. Confirm the record/playback frequency characteristic is within ± 3dB at 20Hz to 20kHz.

GENERAL UNIT

EXPLODED VIEW



PARTS LIST

Ref. No.	Part No.	Description	Ref. No.	Part No.	Description	Ref. No.	Part No.	Description	Ref. No.	Part No.	Description
AA	A442-TD4500A	FRONT PANEL ASS'Y  	148	1630-04502	ROTARY KNOB  	175	2360-7022	BOSS	204	2347-R0130084	SCREW (3X8mm)
AAA	A442-TD4500B	FRONT PANEL ASS'Y   	148A	1630-04501	ROTARY KNOB   	176	2360-7063	BOSS	207	2347-R0140062	SCREW (4X6mm)
AB	A512-TD4500A	CASSETTE LID ASS'Y  	151	1632-20402	ROTARY KNOB  	177	2601-7192	SHAFT	208	2347-R0140064	SCREW (4X6mm)
ABA	A512-TD4500B	CASSETTE LID ASS'Y   	151A	1632-20401	ROTARY KNOB   	179	2651-047	SPRING	213	2459-3005511	RIVET, PLASTIC
103	3112-13706	CASSETTE TAPE RECORDER MECHANICAL ASS'Y	154	1662-58403	PUSH BUTTON  	180	2651-11212	SPRING, LEVER	214	2240-7049	HOLDER
			154A	1662-58401	PUSH BUTTON   	181	2651-2101732	SPRING	216	2403-303	WASHER, POLY
131	1319-03301	LEG	155	1662-58404	PUSH BUTTON  	183	2652-105	LEAF SPRING	217	2414-302	WASHER
133	1414-15901	CABINET, TOP COVER	155A	1662-58402	PUSH BUTTON   	185	2411-30Z1	WASHER, PLAIN	△ P1	4161-71151	CORD W/PLUG  
134	1424-31609	CABINET BACK, REAR  	158	1741-01601	ORNAMENT	186	2411-40Z1	WASHER, PLAIN	△ P1	4161-7256	CORD W/PLUG  
134A	1424-31610	CABINET BACK, REAR   	160	1756-CSA	LABEL  	187	2672-7044	LEVER	△ P1	4161-04100	CORD W/PLUG  
135	1424-31801	CABINET BACK, BOTTOM	162	2211-7311	CHASSIS	189	2692-016	DAMPER	△ T1	5584-S8501	XFORMER, POWER  
140	1512-06806	PLATE  	164	2219-8285	METAL FITTING	191	2320-044	SCREW, SPECIAL	△ T1	5584-S8202	XFORMER, POWER   
140A	1512-06802	PLATE   	165	2219-8288	METAL FITTING	194	2327-R0130082	SCREW (3X8mm)			
141	1514-23201	PLATE	166	2219-8289	METAL FITTING	196	2347-300527	SCREW			
143	1532-19501	WINDOW	167	2219-8293	METAL FITTING	197	2347-R0130062	SCREW (3X6mm)			
144	1612-07401	CASSETTE LID	169	2222-7281	HEAT SINK	198	2347-R0130062	SCREW (3X6mm)			
145	1630-04402	ROTARY KNOB  	170	2240-364	HOLDER	200	2343-300627	SCREW			
145A	1630-04401	ROTARY KNOB   	172	2240-R0101	HOLDER	203	2347-R0130082	SCREW (3X8mm)			

NOTE

NOTE SAFETY RELATED COMPONENT. USE ONLY
EXACT REPLACEMENT PART AS SPECIFIED.

A B C D E

GENERAL UNIT

EXPLODED VIEW

1

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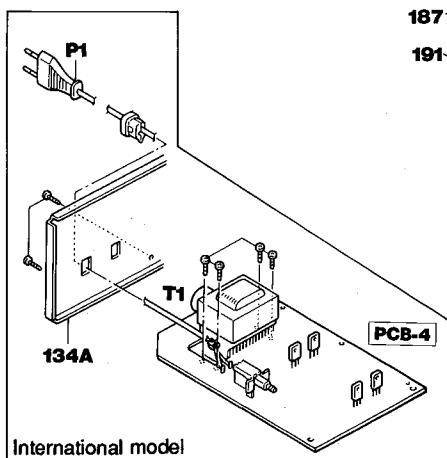
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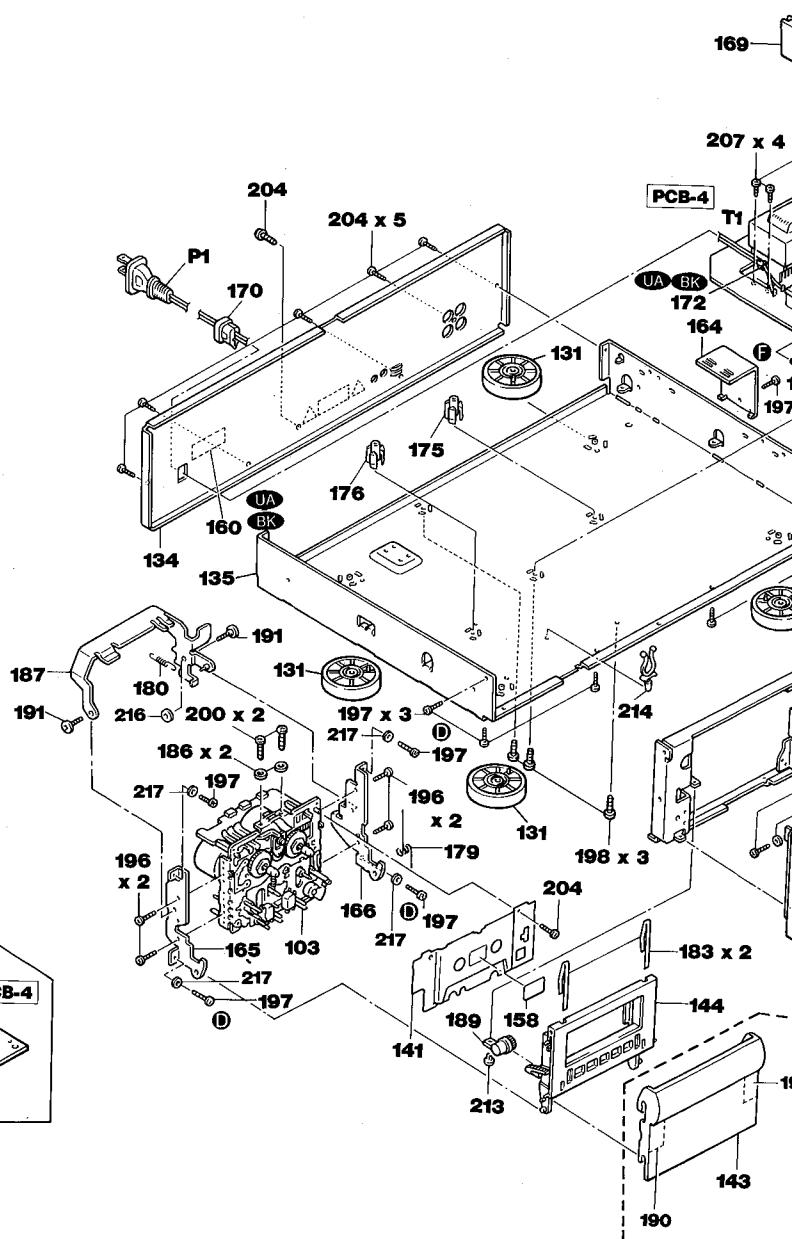
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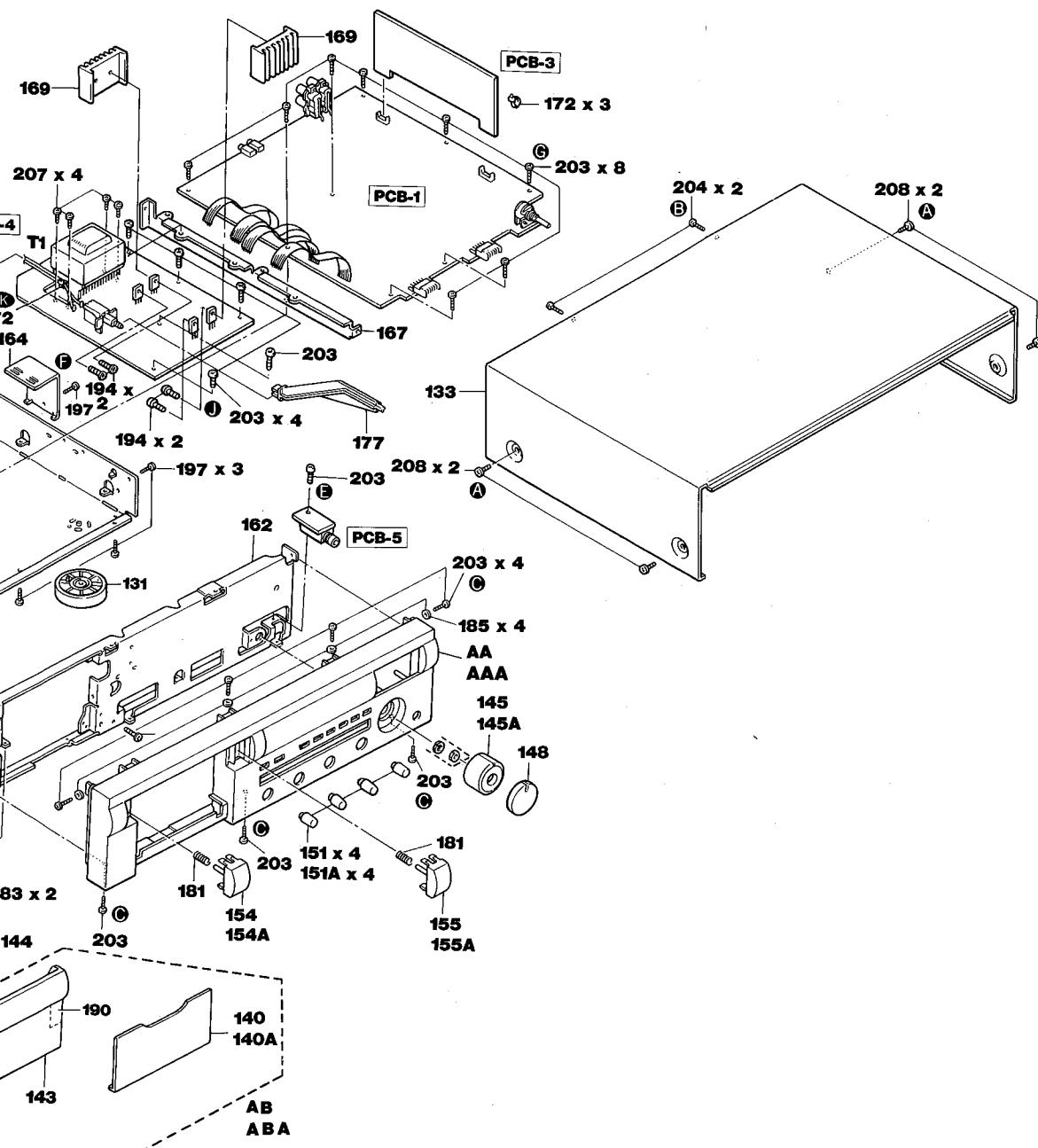
International model



PARTS LIST

Ref. No.	Part No.	Description	Ref. No.	Part No.	Description
AA	A442-TD4500A	FRONT PANEL ASS'Y	148	1630-04502	ROTARY KNOB
AAA	A442-TD4500B	FRONT PANEL ASS'Y	148A	1630-04501	ROTARY KNOB
AB	A512-TD4500A	CASSETTE LID ASS'Y	151	1632-20402	ROTARY KNOB
ABA	A512-TD4500B	CASSETTE LID ASS'Y	151A	1632-20401	ROTARY KNOB
103	3112-13706	CASSETTE TAPE RECORDER MECHANICAL ASS'Y	154	1662-58403	PUSH BUTTON
131	1319-03301	LEG	154A	1662-58401	PUSH BUTTON
133	1414-15901	CABINET, TOP COVER	155	1662-58404	PUSH BUTTON
134	1424-31609	CABINET BACK, REAR	155A	1662-58402	PUSH BUTTON
135	1424-31801	CABINET BACK, BOTTOM	158	1741-01601	ORNAMENT
140	1512-06806	PLATE	160	1756-CSA	LABEL
140A	1512-06802	PLATE	162	2211-7311	CHASSIS
141	1514-23201	PLATE	164	2219-8285	METAL FITTING
143	1532-19501	WINDOW	165	2219-8288	METAL FITTING
144	1612-07401	CASSETTE LID	166	2219-8289	METAL FITTING
145	1630-04402	ROTARY KNOB	167	2219-8293	METAL FITTING
145A	1630-04401	ROTARY KNOB	169	2222-7281	HEAT SINK
			170	2240-364	HOLDER
			172	2240-R0101	HOLDER

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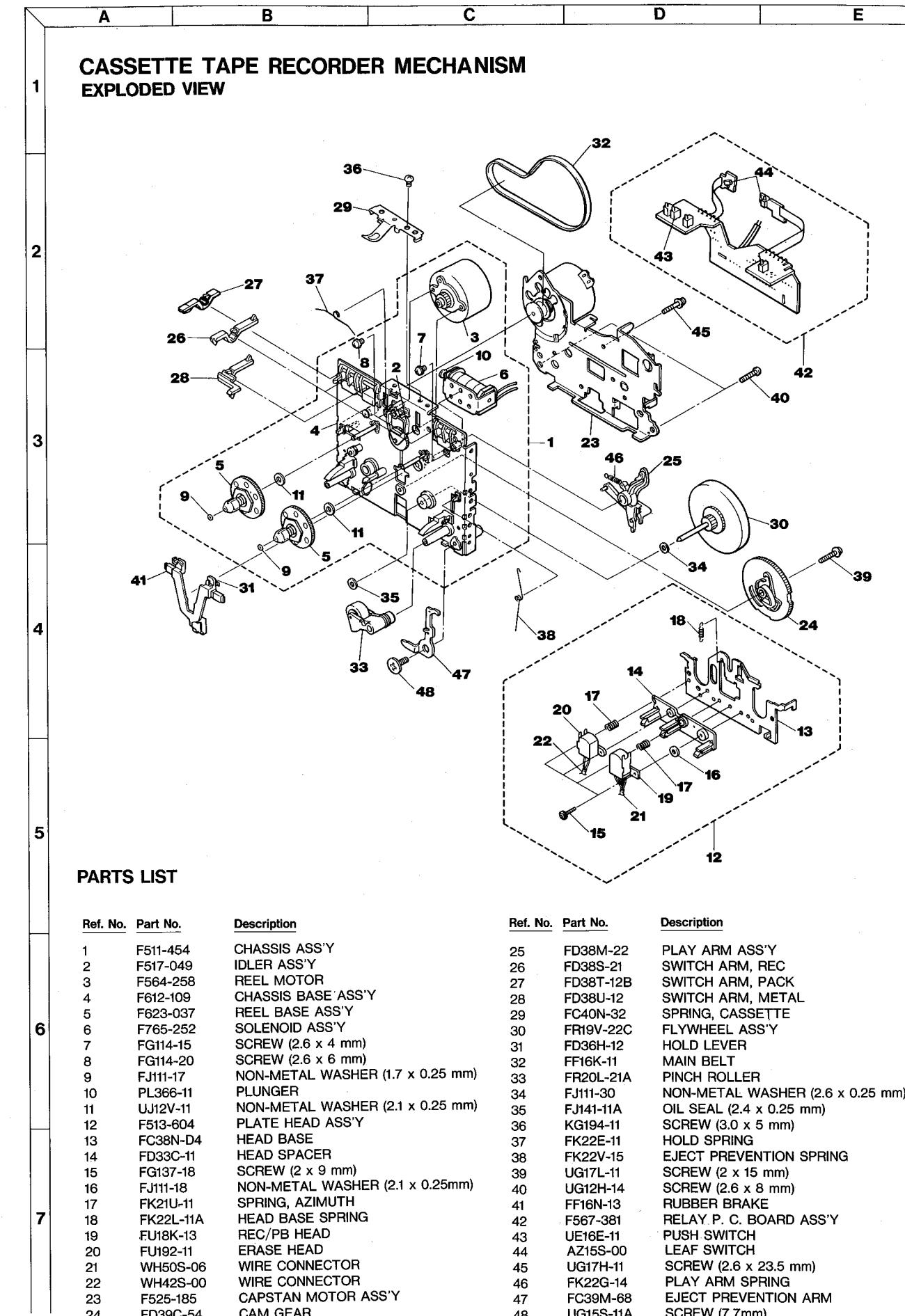
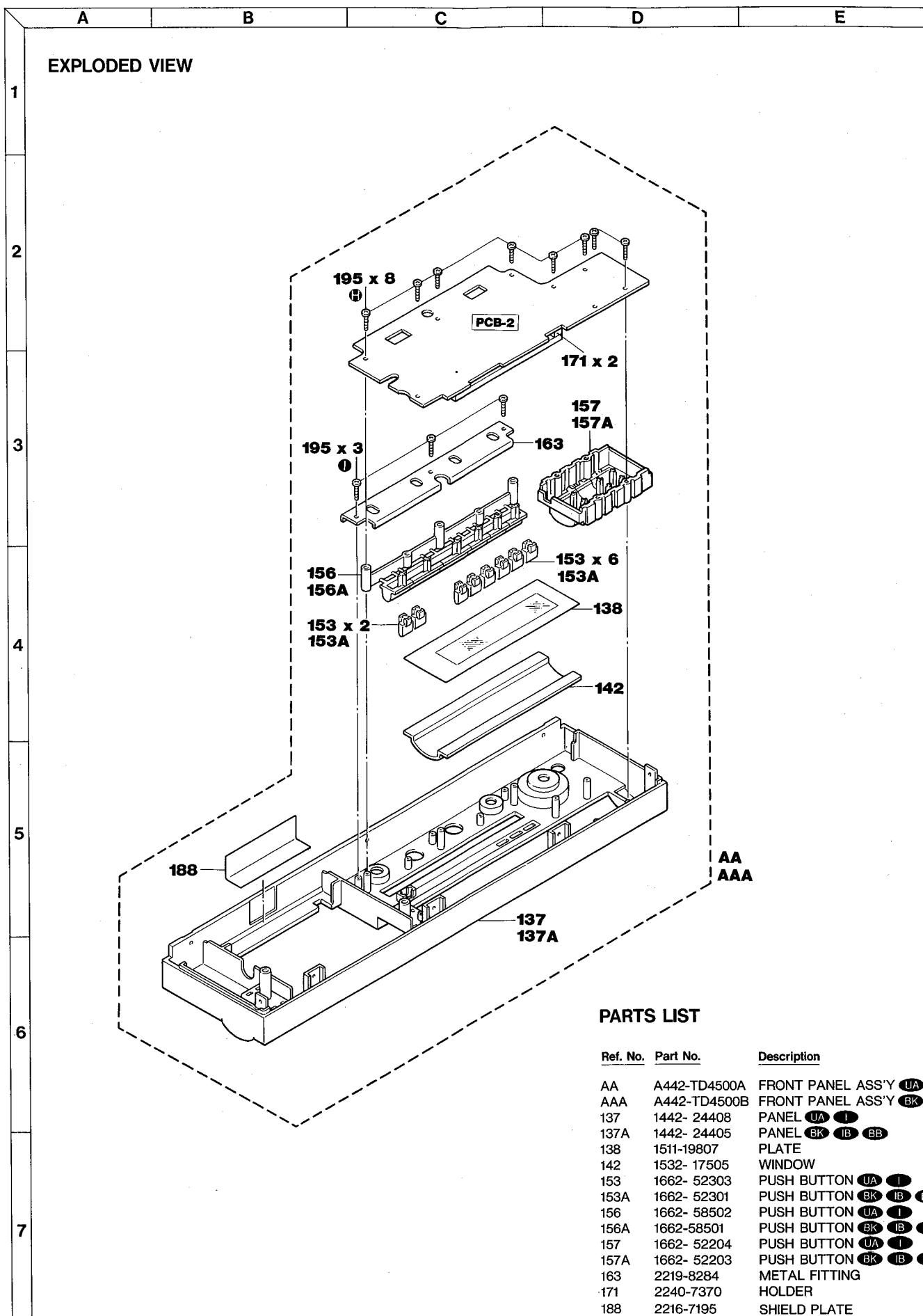


Ref. No.	Part No.	Description
I	175	2360-7022 BOSS
B	176	2360-7063 BOSS
BB	177	2601-7192 SHAFT
I	179	2651-047 SPRING
B	180	2651-11212 SPRING, LEVER
BB	181	2651-2101732 SPRING
I	183	2652-105 LEAF SPRING
B	185	2411-30Z1 WASHER, PLAIN
BB	186	2411-40Z1 WASHER, PLAIN
I	187	2672-7044 LEVER
B	189	2692-016 DAMPER
BB	191	2320-044 SCREW, SPECIAL
I	194	2327-R0130082 SCREW (3X8mm)
B	196	2347-300527 SCREW
BB	197	2347-R0130062 SCREW (3X6mm)
I	198	2347-R0130062 SCREW (3X6mm)
B	200	2343-300627 SCREW
BB	203	2347-R0130082 SCREW (3X8mm)

Ref. No.	Part No.	Description
204	2347-R0130084	SCREW (3X8mm)
207	2347-R0140062	SCREW (4X6mm)
208	2347-R0140064	SCREW (4X6mm)
213	2459-3005511	RIVET, PLASTIC
214	2240-7049	HOLDER
216	2403-303	WASHER, POLY
217	2414-302	WASHER
▲ P1	4161-71151	CORD W/PLUG UA BK
▲ P1	4161-7256	CORD W/PLUG I IB
▲ P1	4161-04100	CORD W/PLUG BB
▲ T1	5584-S8501	XFORMER, POWER UA BK
▲ T1	5584-S8202	XFORMER, POWER I IB BB

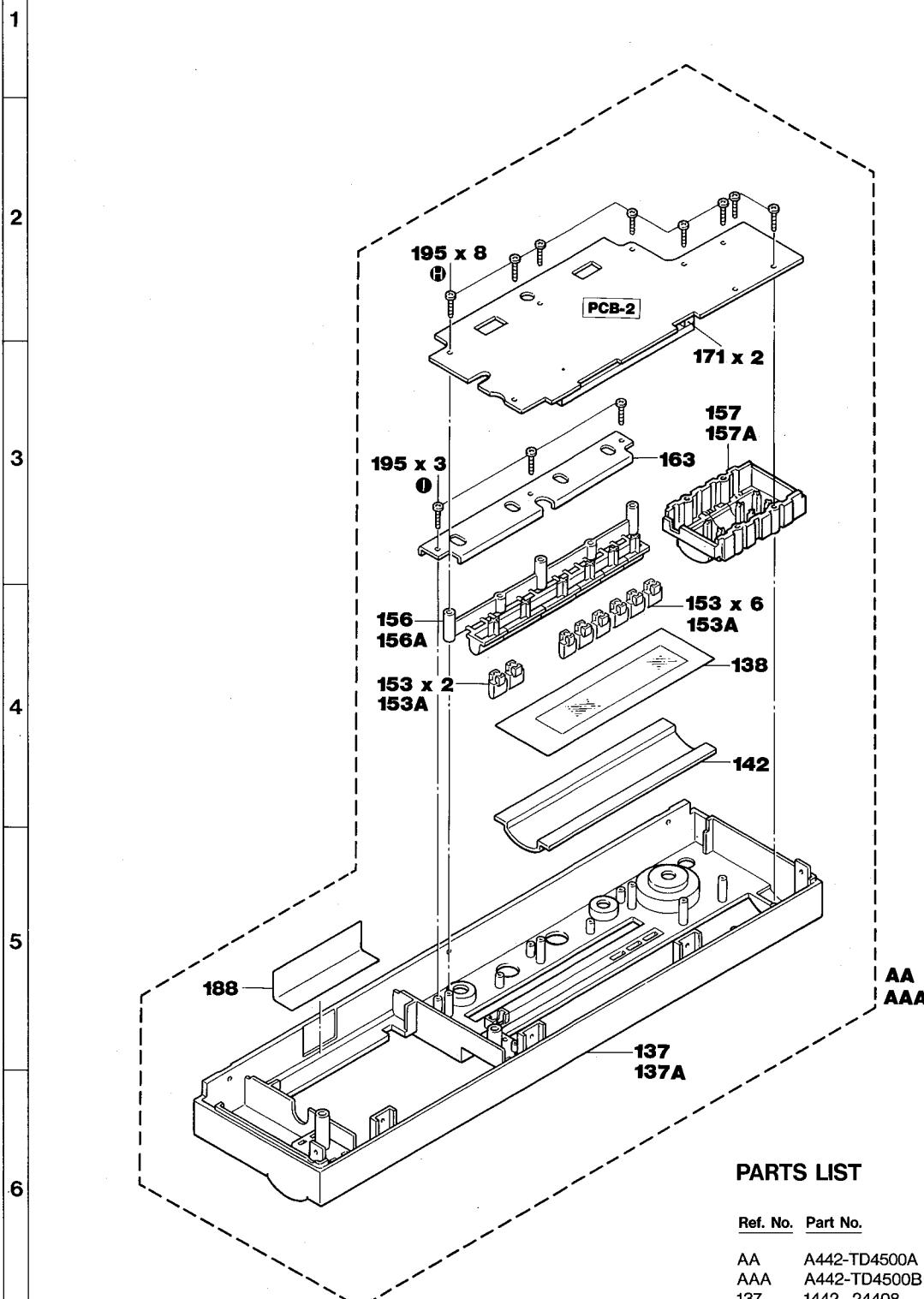
NOTE

! SAFETY RELATED COMPONENT. USE ONLY
EXACT REPLACEMENT PART AS SPECIFIED.



A B C D E

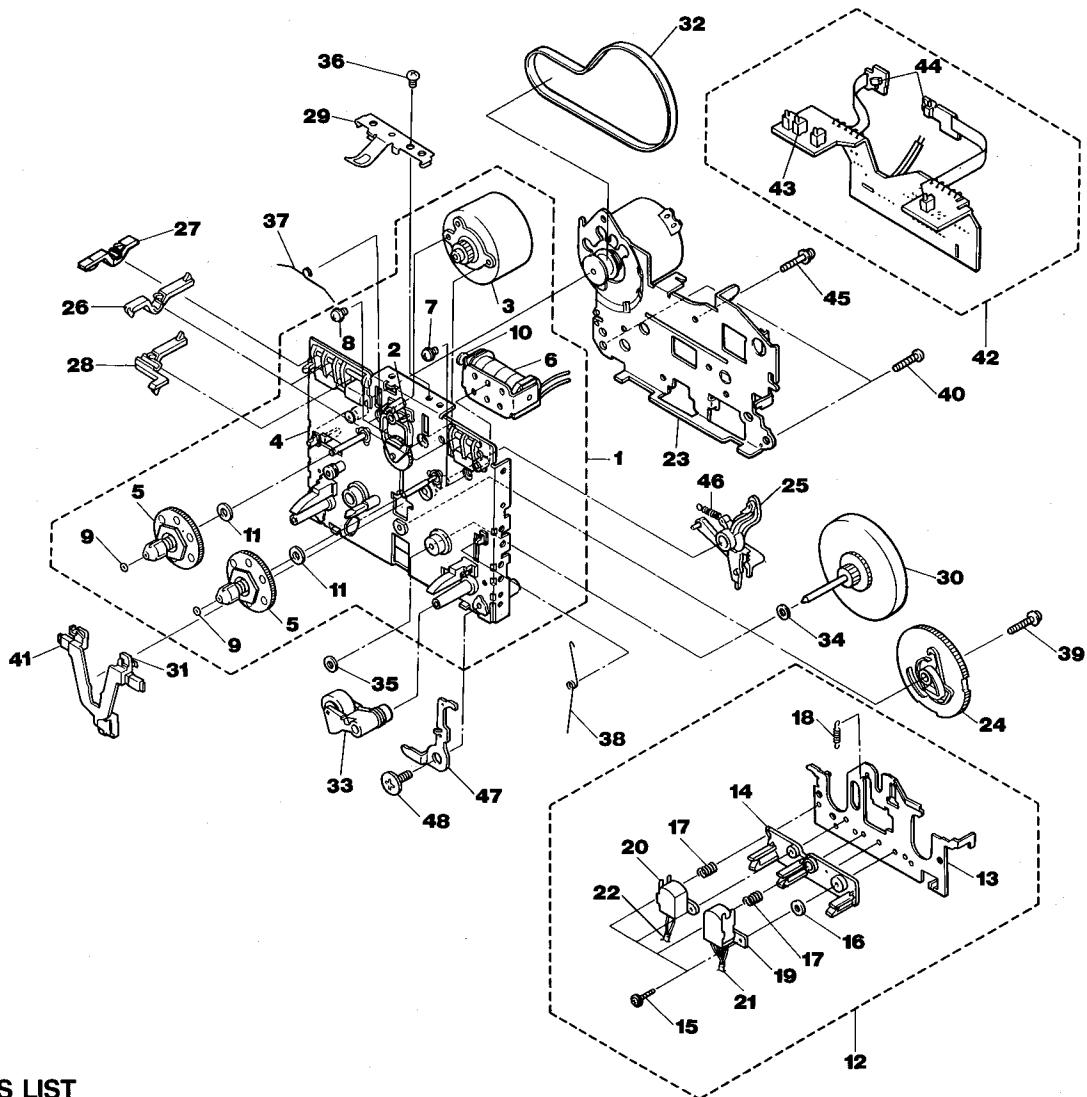
EXPLODED VIEW



PARTS LIST

Ref. No.	Part No.	Description
AA	A442-TD4500A	FRONT PANEL ASS'Y (UA) (I)
AAA	A442-TD4500B	FRONT PANEL ASS'Y (BK) (IB) (BB)
137	1442- 24408	PANEL (UA) (I)
137A	1442- 24405	PANEL (BK) (IB) (BB)
138	1511-19807	PLATE
142	1532- 17505	WINDOW
153	1662- 52303	PUSH BUTTON (UA) (I)
153A	1662- 52301	PUSH BUTTON (BK) (IB) (BB)
156	1662- 58502	PUSH BUTTON (UA) (I)
156A	1662- 58501	PUSH BUTTON (BK) (IB) (BB)
157	1662- 52204	PUSH BUTTON (UA) (I)
157A	1662- 52203	PUSH BUTTON (BK) (IB) (BB)
163	2219-8284	METAL FITTING
171	2240-7370	HOLDER
188	2216-7195	SHIELD PLATE
195	2347-R0126082	SCREW (2.6X8mm)

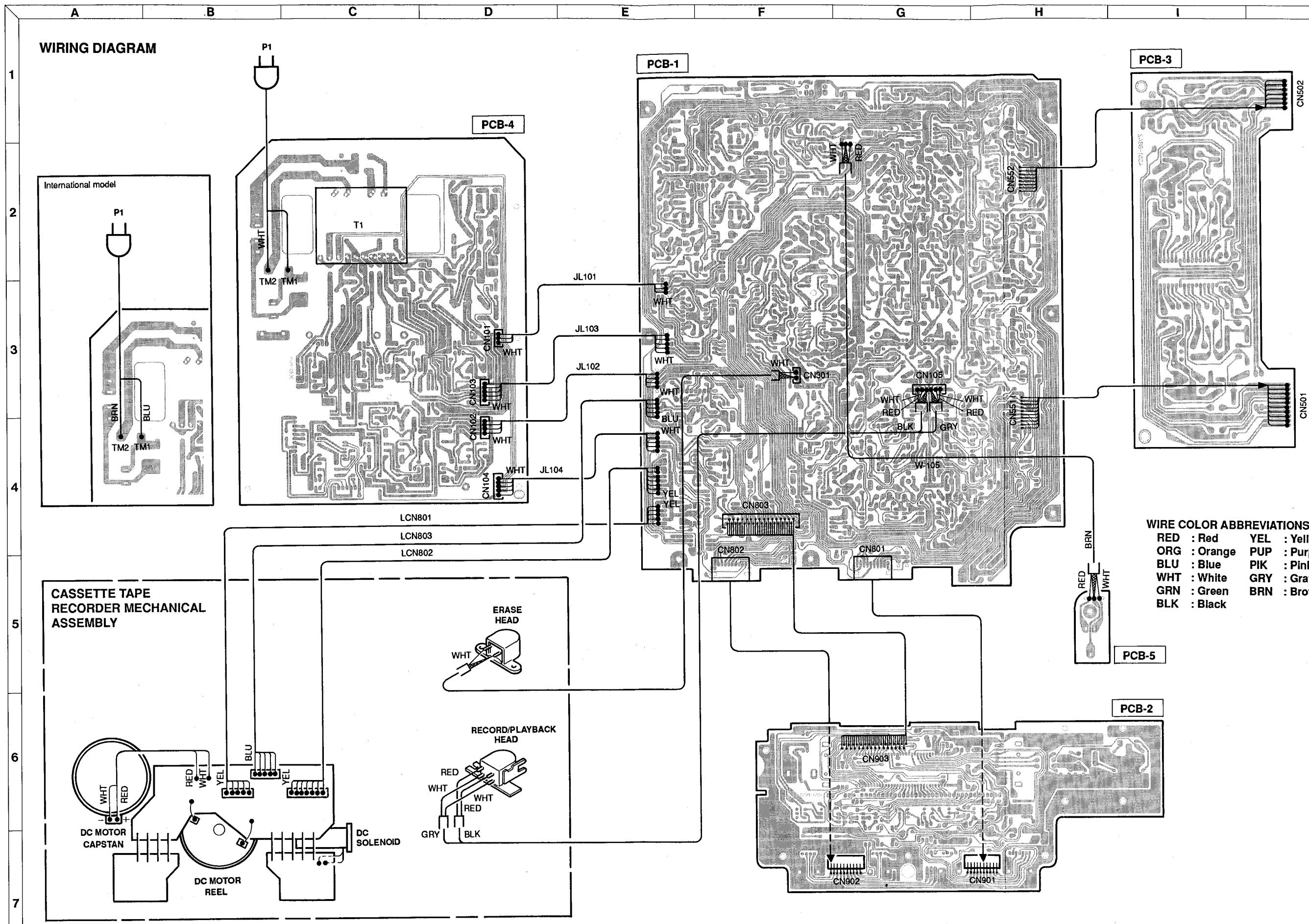
**CASSETTE TAPE RECORDER MECHANISM
EXPLODED VIEW**



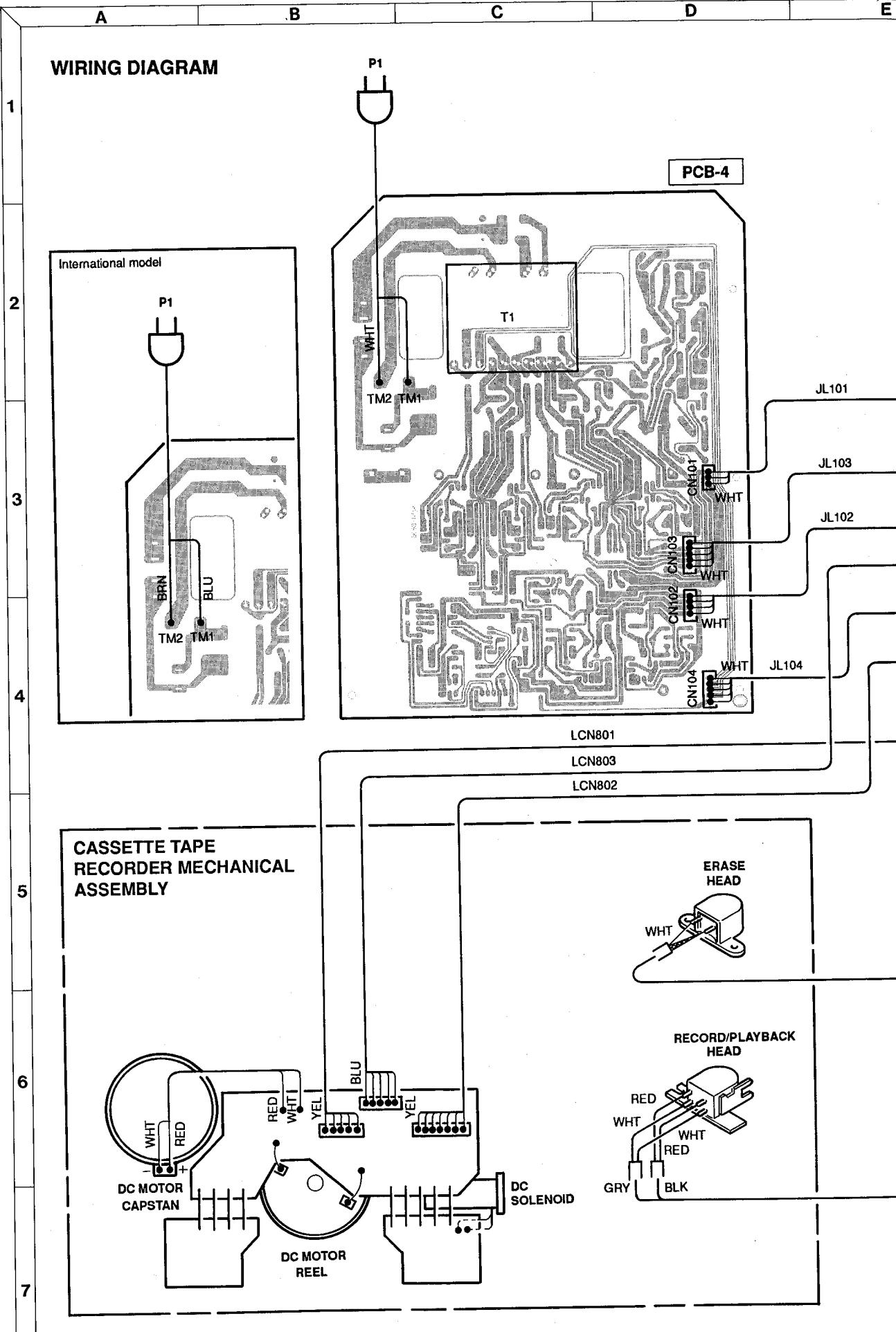
PARTS LIST

Ref. No.	Part No.	Description	Ref. No.	Part No.	Description
1	F511-454	CHASSIS ASS'Y	25	FD38M-22	PLAY ARM ASS'Y
2	F517-049	IDLER ASS'Y	26	FD38S-21	SWITCH ARM, REC
3	F564-258	REEL MOTOR	27	FD38T-12B	SWITCH ARM, PACK
4	F612-109	CHASSIS BASE ASS'Y	28	FD38U-12	SWITCH ARM, METAL
5	F623-037	REEL BASE ASS'Y	29	FC40N-32	SPRING, CASSETTE
6	F765-252	SOLENOID ASS'Y	30	FR19V-22C	FLYWHEEL ASS'Y
7	FG114-15	SCREW (2.6 x 4 mm)	31	FD36H-12	HOLD LEVER
8	FG114-20	SCREW (2.6 x 6 mm)	32	FF16K-11	MAIN BELT
9	FJ11-17	NON-METAL WASHER (1.7 x 0.25 mm)	33	FR20L-21A	PINCH ROLLER
10	PL366-11	PLUNGER	34	FJ11-30	NON-METAL WASHER (2.6 x 0.25 mm)
11	UJ12V-11	NON-METAL WASHER (2.1 x 0.25 mm)	35	FJ141-11A	OIL SEAL (2.4 x 0.25 mm)
12	F513-604	PLATE HEAD ASS'Y	36	KG194-11	SCREW (3.0 x 5 mm)
13	FC38N-D4	HEAD BASE	37	FK22E-11	HOLD SPRING
14	FD33C-11	HEAD SPACER	38	FK22V-15	EJECT PREVENTION SPRING
15	FG137-18	SCREW (2 x 9 mm)	39	UG17L-11	SCREW (2 x 15 mm)
16	FJ11-18	NON-METAL WASHER (2.1 x 0.25mm)	40	UG12H-14	SCREW (2.6 x 8 mm)
17	FK21U-11	SPRING, AZIMUTH	41	FF16N-13	RUBBER BRAKE
18	FK22L-11A	HEAD BASE SPRING	42	F567-381	RELAY, P. C. BOARD ASS'Y
19	FU18K-13	REC/PB HEAD	43	UE16E-11	PUSH SWITCH
20	FU192-11	ERASE HEAD	44	AZ15S-00	LEAF SWITCH
21	WH50S-06	WIRE CONNECTOR	45	UG17H-11	SCREW (2.6 x 23.5 mm)
22	WH42S-00	WIRE CONNECTOR	46	FK22G-14	PLAY ARM SPRING
23	F525-185	CAPSTAN MOTOR ASS'Y	47	FC39M-68	EJECT PREVENTION ARM
24	FD39C-54	CAM GEAR	48	UG15S-11A	SCREW (7.7mm)

WIRING DIAGRAM

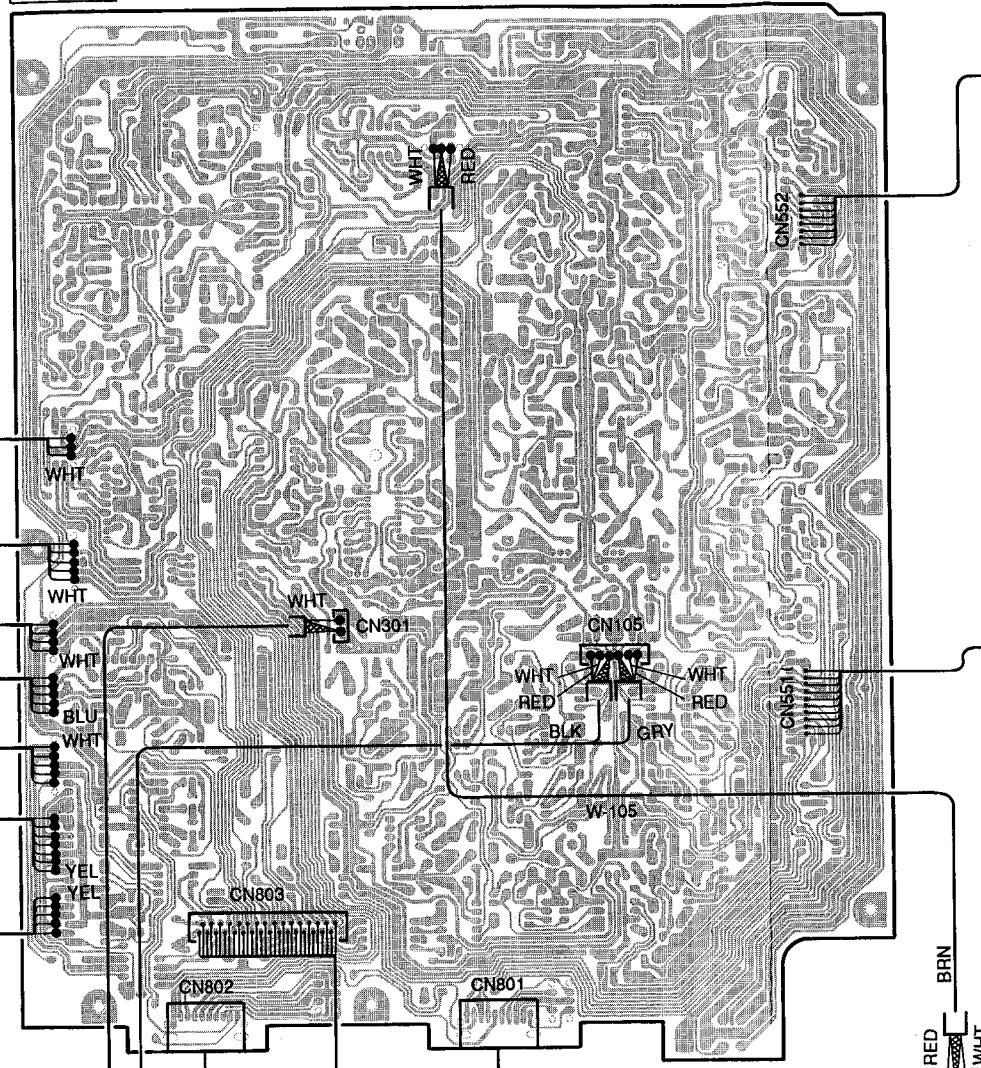


WIRING DIAGRAM

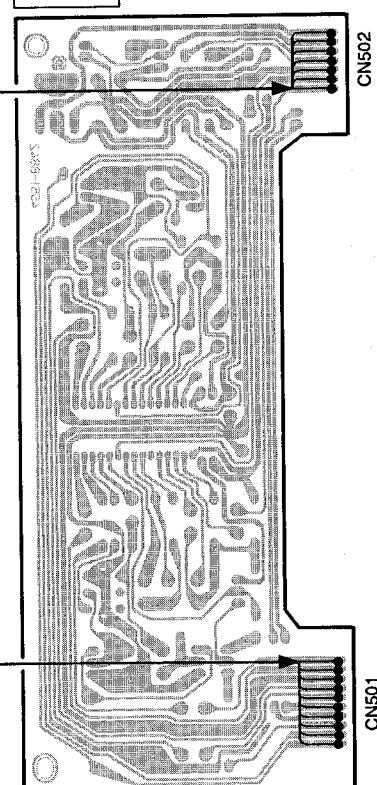


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PCB-1

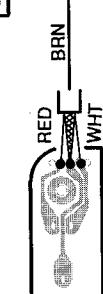


PCB-3

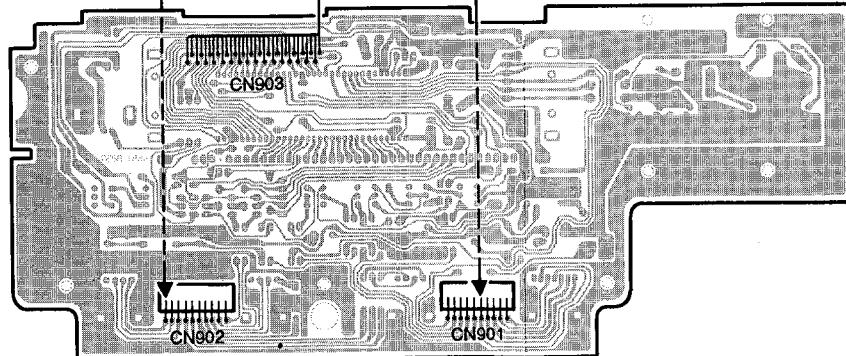
**WIRE COLOR ABBREVIATIONS**

RED	: Red	YEL	: Yellow
ORG	: Orange	PUP	: Purple
BLU	: Blue	PIK	: Pink
WHT	: White	GRY	: Gray
GRN	: Green	BRN	: Brown
BLK	: Black		

PCB-5



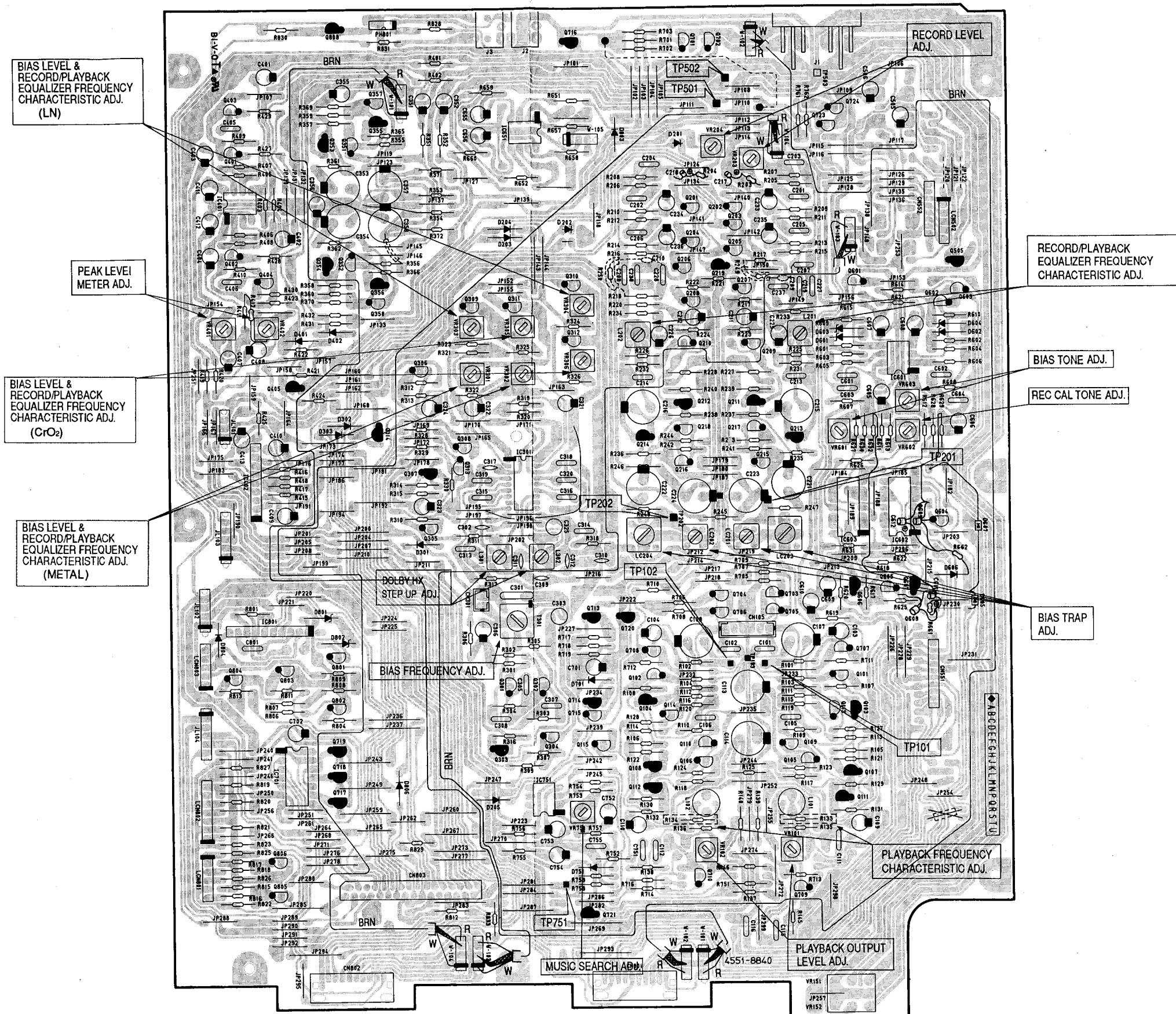
PCB-2



A B C D E F G H I J

P. C. BOARDS (1)

PCB-1 Main P. C. Board



A

B

C

D

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P. C. BOARDS (1)

PCB-1 Main P. C. Board

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1

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10

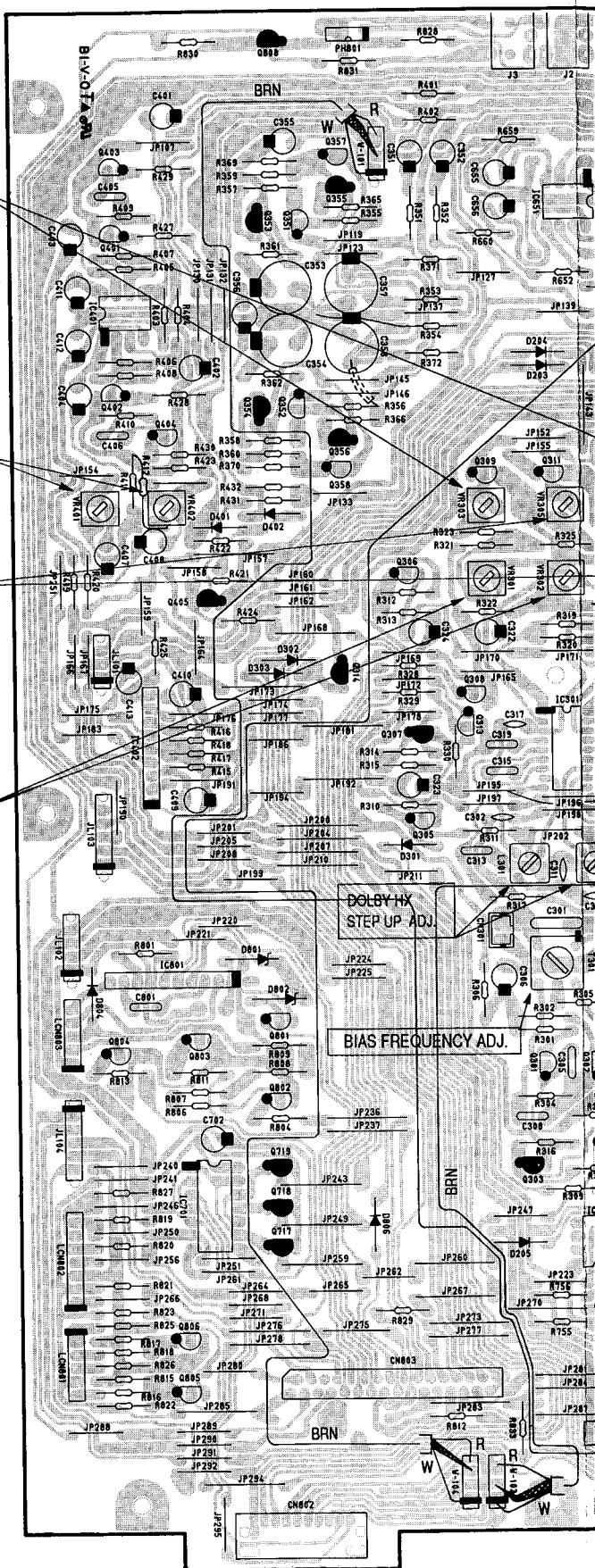
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**BIAS LEVEL &
RECORD/PLAYBACK
EQUALIZER FREQUENCY
CHARACTERISTIC ADJ.
(LN)**

**PEAK LEVEL
METER ADJ.**

BIAS LEVEL &
RECORD/PLAYBACK
EQUALIZER FREQUENCY
CHARACTERISTIC ADJ.
(CrO₂)

**BIAS LEVEL &
RECORD/PLAYBACK
EQUALIZER FREQUENCY
CHARACTERISTIC ADJ.
(METAL)**



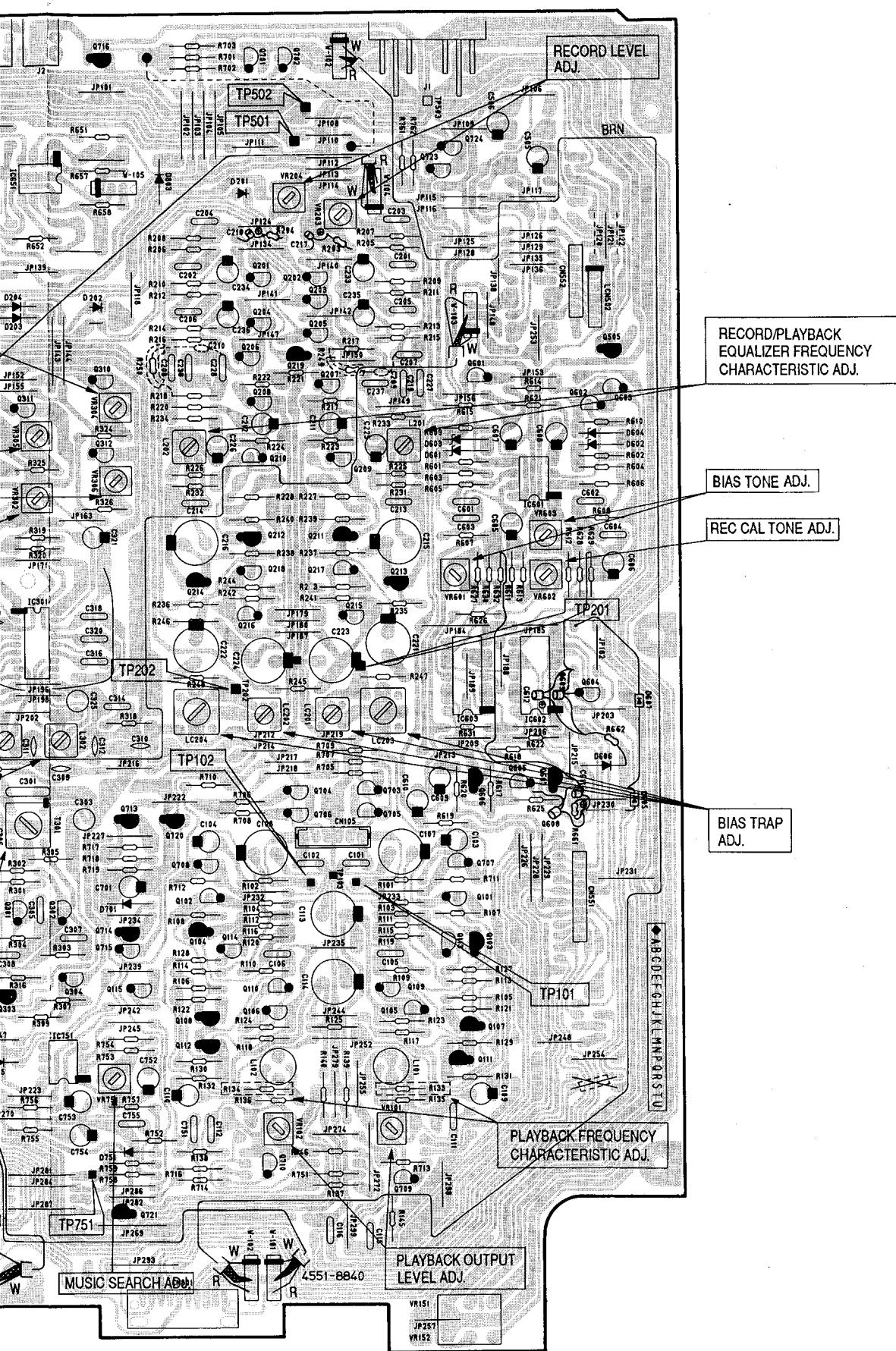
F

G

H

I

J



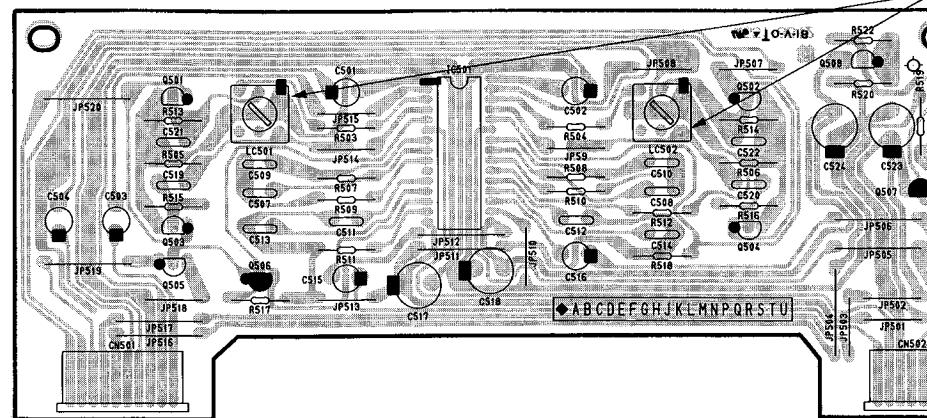
A B C D E F G H I J

P. C. BOARDS (2)

1

PCB-3

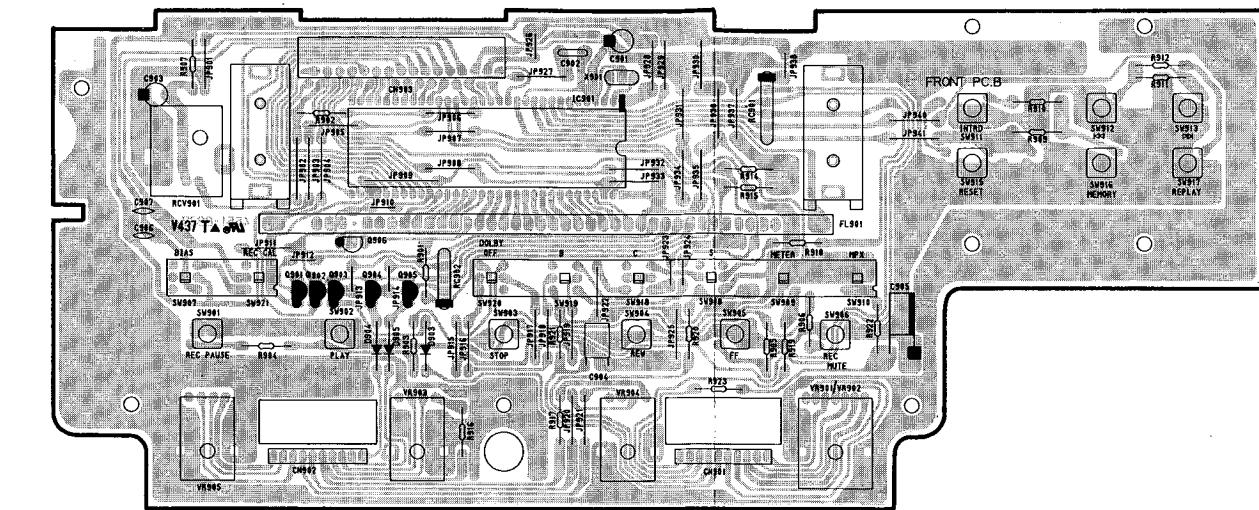
Dolby B/C NR P. C. Board



2

PCB-2

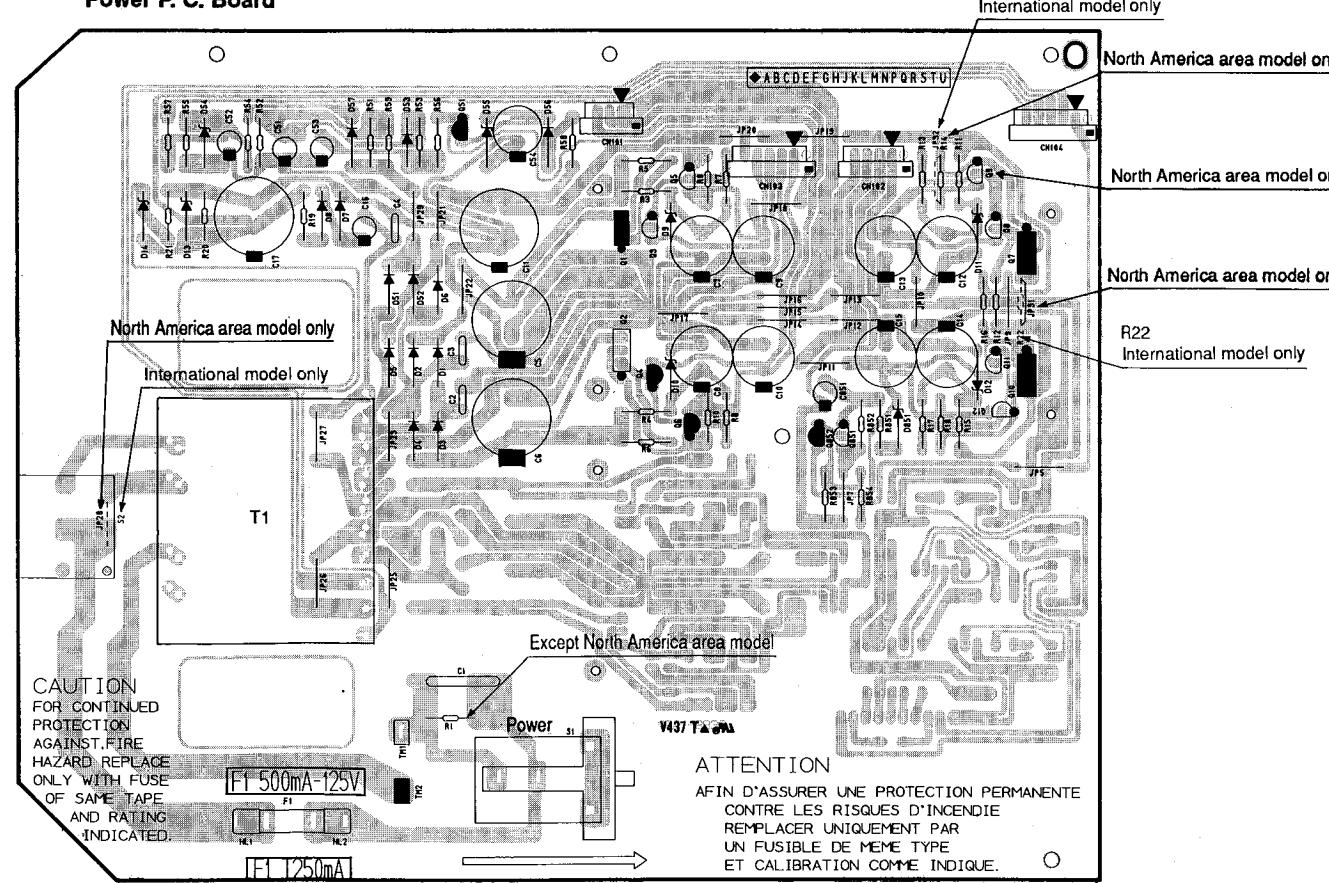
Front P. C. Board



3

PCB-4

Power P. C. Board



4

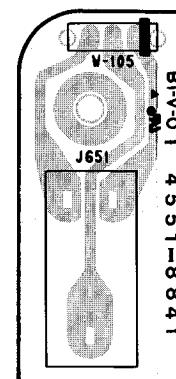
5

6

7

PCB-5

Headphone P. C. Board



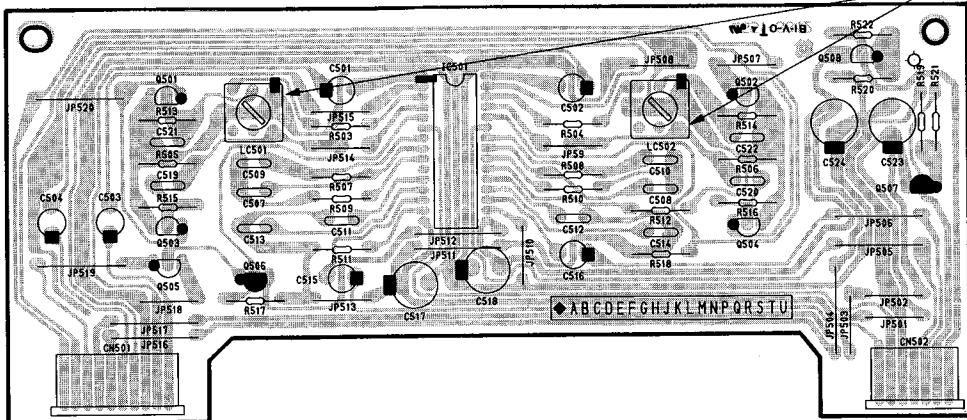
A B C D E

P. C. BOARDS (2)

1

PCB-3

Dolby B/C NR P. C. Board



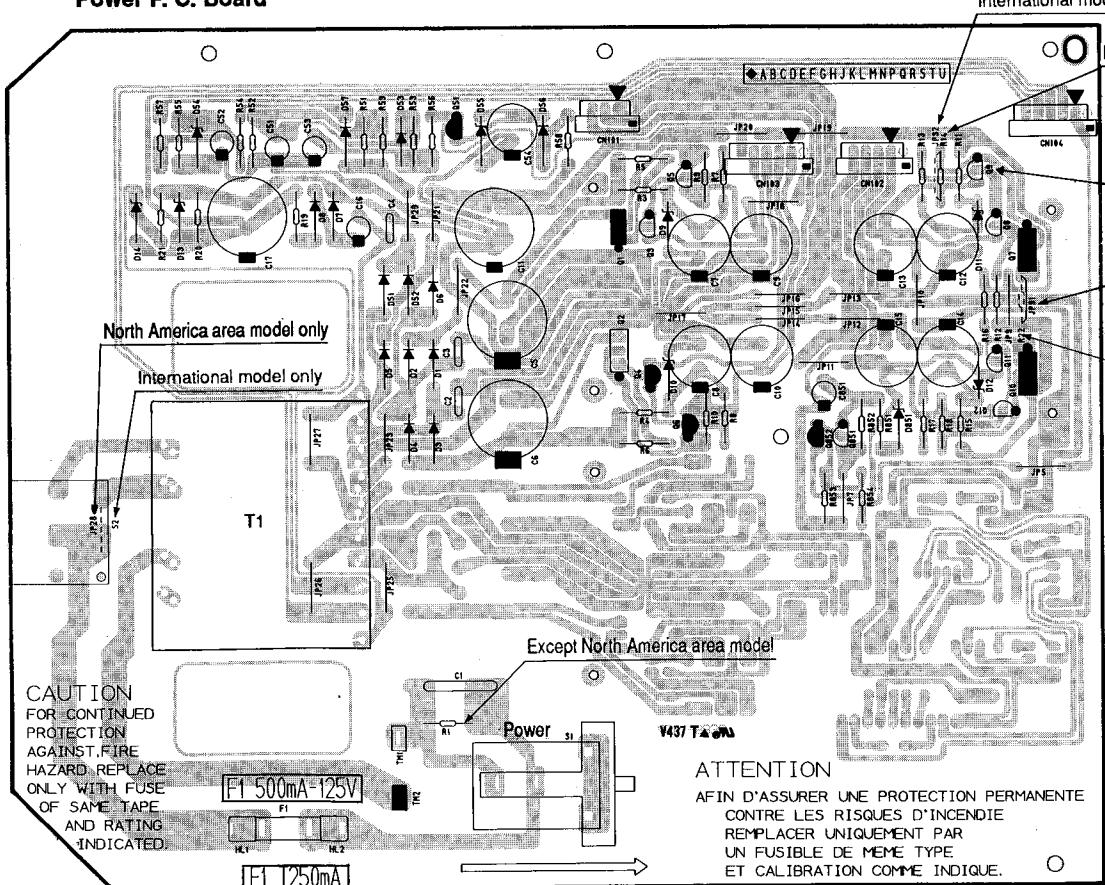
2

3

4

PCB-4

Power P. C. Board



5

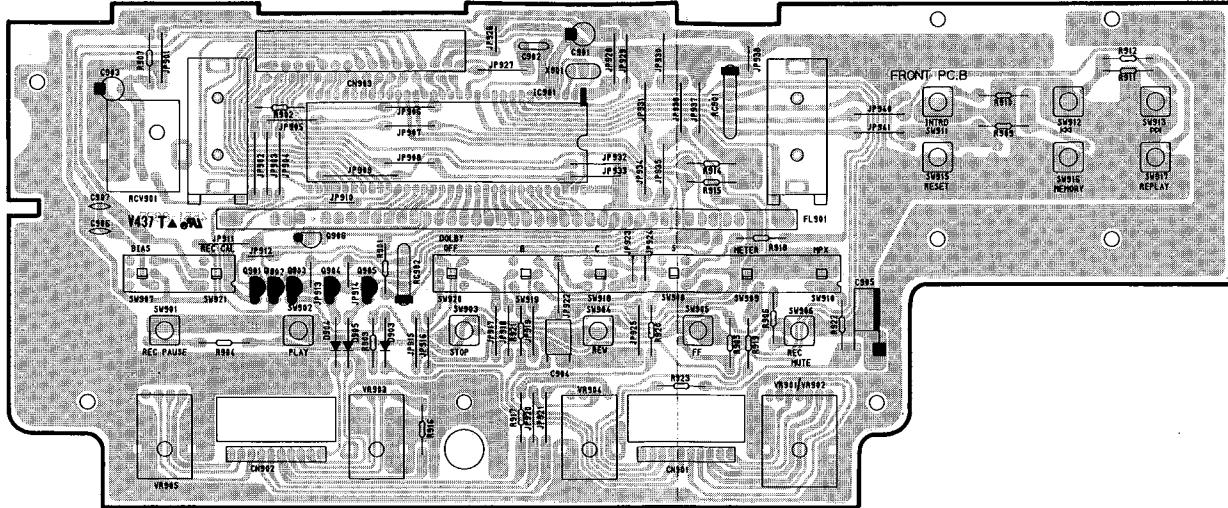
6

7

E **F** **G** **H** **I** **J**

PCB-2

Front P. C. Board



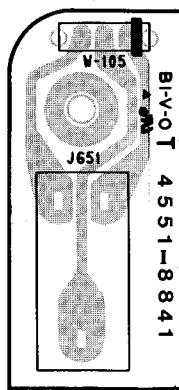
model only

North America area model only

North America area model only

North America area model only

R22
International model only



PCB-5

Headphone P. C. Board

ELECTRICAL PARTS LIST

Ser.No.	Ref.No.	Part No.	Description	Ser.No.	Ref.No.	Part No.	Description	Ser.No.	Ref.No.	Part No.	Description	Ser.No.	Ref.No.	Part No.	Description
PCB-1 MAIN P. C. BOARD															
			CAPACITORS												
427	C101	5359-4715851	CAP,PPP 470P	916	C354	5345-107B0951	CAP,MINI ELE 100 μ /10V	451	R136	5135-221522	RES,CBN 1/2P 220	575	R328	5135-471522	RES,CBN 1/2P 470
427	C102	5359-4715851	CAP,PPP 470P	916	C355	5345-107B0951	CAP,MINI ELE 100 μ /10V	453	R137	5135-104522	RES,CBN 1/2P 100K	576	R329	5135-123522	RES,CBN 1/2P 12K
415	C103	5345-106C0951	CAP,MINI ELE 10 μ /16V	916	C356	5345-107B0951	CAP,MINI ELE 100 μ /10V	453	R138	5135-104522	RES,CBN 1/2P 100K	576	R330	5135-123522	RES,CBN 1/2P 12K
415	C104	5345-106C0951	CAP,MINI ELE 10 μ /16V	917	C357	5345-227C041	CAP,MINI ELE 220 μ /16V	431	R139	5135-121522	RES,CBN 1/2P 120	919	R351	5135-102522	RES,CBN 1/2P 1K
423	C105	5359-8225851	CAP,PPP 8200P	714	C401	5345-105F041	CAP,MINI ELE 1 μ /50V	431	R140	5135-121522	RES,CBN 1/2P 120	919	R352	5135-102522	RES,CBN 1/2P 1K
423	C106	5359-8225851	CAP,PPP 8200P	712	C403	5345-475F041	CAP,MINI ELE 4.7 μ /50V	454	R145	5135-102522	RES,CBN 1/2P 1K	920	R353	5135-473522	RES,CBN 1/2P 47K
416	C107	5345-337A0952	CAP,MINI ELE 330 μ /6.3V	716	C405	5359-S010J222	CAP,PPP 2200P	497	R203	5135-222522	RES,CBN 1/2P 2.2K	921	R355	5135-182522	RES,CBN 1/2P 1.8K
416	C108	5345-337A0952	CAP,MINI ELE 330 μ /6.3V	716	C406	5359-S010J222	CAP,PPP 2200P	497	R204	5135-222522	RES,CBN 1/2P 2.2K	921	R356	5135-182522	RES,CBN 1/2P 1.8K
415	C109	5345-106C0951	CAP,MINI ELE 10 μ /16V	712	C407	5345-475F041	CAP,MINI ELE 4.7 μ /50V	498	R205	5135-104522	RES,CBN 1/2P 100K	922	R357	5135-101522	RES,CBN 1/2P 100
415	C110	5345-106C0951	CAP,MINI ELE 10 μ /16V	712	C408	5345-475F041	CAP,MINI ELE 4.7 μ /50V	498	R206	5135-104522	RES,CBN 1/2P 100K	922	R358	5135-101522	RES,CBN 1/2P 100
424	C111	5359-1825851	CAP,PPP 1800P	712	C410	5345-475F041	CAP,MINI ELE 4.7 μ /50V	499	R207	5135-223522	RES,CBN 1/2P 22K	923	R359	5135-622522	RES,CBN 1/2P 6.2K
424	C112	5359-1825851	CAP,PPP 1800P	715	C411	5345-226D041	CAP,MINI ELE 22 μ /25V	499	R208	5135-223522	RES,CBN 1/2P 22K	923	R360	5135-622522	RES,CBN 1/2P 6.2K
420	C113	5345-477C041	CAP,MINI ELE 470 μ /16V	715	C412	5345-226D041	CAP,MINI ELE 22 μ /25V	500	R209	5135-392522	RES,CBN 1/2P 3.9K	924	R361	5135-272522	RES,CBN 1/2P 2.7K
420	C114	5345-477C041	CAP,MINI ELE 470 μ /16V	713	C413	5345-476C041	CAP,MINI ELE 47 μ /16V	500	R210	5135-392522	RES,CBN 1/2P 3.9K	924	R362	5135-272522	RES,CBN 1/2P 2.7K
425	C115	5359-1225851	CAP,PPP 1200P	650	C505	5345-106C0951	CAP,MINI ELE 10 μ /16V	501	R211	5135-272522	RES,CBN 1/2P 2.7K	922	R365	5135-101522	RES,CBN 1/2P 100
425	C116	5359-1225851	CAP,PPP 1200P	650	C506	5345-106C0951	CAP,MINI ELE 10 μ /16V	501	R212	5135-272522	RES,CBN 1/2P 2.7K	922	R366	5135-101522	RES,CBN 1/2P 100
485	C201	5359-S010J152	CAP,PPP 1500P	952	C601	5354-393J1HM	CAP,MYL .039 μ	504	R217	5135-471522	RES,CBN 1/2P 470	719	R401	5135-472522	RES,CBN 1/2P 4.7K
485	C202	5359-S010J152	CAP,PPP 1500P	953	C602	5359-S010J122	CAP,PPP 1200P	504	R218	5135-471522	RES,CBN 1/2P 470	719	R402	5135-472522	RES,CBN 1/2P 4.7K
484	C203	5359-S010J122	CAP,PPP 1200P	952	C603	5354-393J1HM	CAP,MYL .039 μ	505	R219	5135-222522	RES,CBN 1/2P 2.2K	720	R403	5135-103522	RES,CBN 1/2P 10K
484	C204	5359-S010J122	CAP,PPP 1200P	953	C604	5359-S010J122	CAP,PPP 1200P	505	R220	5135-222522	RES,CBN 1/2P 2.2K	720	R404	5135-103522	RES,CBN 1/2P 10K
486	C205	5359-S010J273	CAP,PPP 0.027	955	C605	5345-105F041	CAP,MINI ELE 1 μ /50V	506	R221	5135-472522	RES,CBN 1/2P 4.7K	721	R405	5135-104522	RES,CBN 1/2P 100K
486	C206	5359-S010J273	CAP,PPP 0.027	955	C606	5345-105F041	CAP,MINI ELE 1 μ /50V	506	R222	5135-472522	RES,CBN 1/2P 4.7K	721	R406	5135-104522	RES,CBN 1/2P 100K
487	C207	5359-S010J562	CAP,PPP 5600P	956	C607	5345-476C041	CAP,MINI ELE 47 μ /16V	507	R223	5135-104522	RES,CBN 1/2P 100K	723	R407	5135-222522	RES,CBN 1/2P 2.2K
487	C208	5359-S010J562	CAP,PPP 5600P	956	C608	5345-476C041	CAP,MINI ELE 47 μ /16V	507	R224	5135-104522	RES,CBN 1/2P 100K	723	R408	5135-222522	RES,CBN 1/2P 2.2K
488	C209	5359-S010J222	CAP,PPP 2200P	956	C609	5345-476C041	CAP,MINI ELE 47 μ /16V	508	R225	5135-181522	RES,CBN 1/2P 180	724	R409	5135-273522	RES,CBN 1/2P 27K
488	C210	5359-S010J222	CAP,PPP 2200P	956	C610	5345-476C041	CAP,MINI ELE 47 μ /16V	508	R226	5135-181522	RES,CBN 1/2P 180	724	R410	5135-273522	RES,CBN 1/2P 27K
476	C211	5345-105F0951	CAP,MINI ELE 1 μ /50V	956	C611	5345-106C041	CAP,MINI ELE 10 μ /16V	510	R227	5135-122522	RES,CBN 1/2P 1.2K	725	R411	5135-223522	RES,CBN 1/2P 22K
476	C212	5345-105F0951	CAP,MINI ELE 1 μ /50V	956	C612	5345-106C041	CAP,MINI ELE 10 μ /16V	510	R228	5135-122522	RES,CBN 1/2P 1.2K	725	R412	5135-223522	RES,CBN 1/2P 22K
491	C213	5359-S010J123	CAP,PPP .012 μ	934	C655	5345-476C041	CAP,MINI ELE 47 μ /16V	509	R231	5135-821522	RES,CBN 1/2P 820	726	R415	5135-334522	RES,CBN 1/2P 330K
491	C214	5359-S010J123	CAP,PPP .012 μ	934	C656	5345-476C041	CAP,MINI ELE 47 μ /16V	509	R232	5135-821522	RES,CBN 1/2P 820	726	R416	5135-334522	RES,CBN 1/2P 330K
477	C215	5345-476C0951	CAP,MINI ELE 47 μ /16V	683	C701	5345-106F041	CAP,MINI ELE 10 μ /50V	515	R233	5135-272522	RES,CBN 1/2P 2.7K	720	R417	5135-103522	RES,CBN 1/2P 10K
477	C216	5345-476C0951	CAP,MINI ELE 47 μ /16V	683	C702	5345-106F041	CAP,MINI ELE 10 μ /50V	515	R234	5135-272522	RES,CBN 1/2P 2.7K	720	R418	5135-103522	RES,CBN 1/2P 10K
482	C217	5345-225F0951	CAP,MINI ELE 2.2 μ /50V	893	C751	5354-473J1HM	CAP,MYL .047 μ	515	R235	5135-122522	RES,CBN 1/2P 1.2K	727	R419	5135-331522	RES,CBN 1/2P 330
482	C218	5345-225F0951	CAP,MINI ELE 2.2 μ /50V	891	C752	5345-476C041	CAP,MINI ELE 47 μ /16V	515	R236	5135-122522	RES,CBN 1/2P 1.2K	727	R420	5135-331522	RES,CBN 1/2P 330
480	C221	5345-227B0952	CAP,MINI ELE 220 μ /10V	891	C753</td										

ELECTRICAL PARTS LIST

Ser.No.	Ref.No.	Part No.	Description	Ser.No.	Ref.No.	Part No.	Description				
PCB-1 MAIN P. C. BOARD											
CAPACITORS											
427	C101	5359-4715851	CAP,PPP 470P	916	C354	5345-107B0951	CAP,MINI ELE 100 μ /10V				
427	C102	5359-4715851	CAP,PPP 470P	916	C355	5345-107B0951	CAP,MINI ELE 100 μ /10V				
415	C103	5345-106C0951	CAP,MINI ELE 10 μ /16V	916	C356	5345-107B0951	CAP,MINI ELE 100 μ /10V				
415	C104	5345-106C0951	CAP,MINI ELE 10 μ /16V	917	C357	5345-227C041	CAP,MINI ELE 220 μ /16V				
423	C105	5359-8225851	CAP,PPP 8200P	714	C401	5345-105F041	CAP,MINI ELE 1 μ /50V				
423	C106	5359-8225851	CAP,PPP 8200P	714	C402	5345-105F041	CAP,MINI ELE 4.7 μ /50V				
416	C107	5345-337A0952	CAP,MINI ELE 330 μ /6.3V	712	C403	5345-475F041	CAP,MINI ELE 4.7 μ /50V				
416	C108	5345-337A0952	CAP,MINI ELE 330 μ /6.3V	712	C404	5345-475F041	CAP,MINI ELE 4.7 μ /50V				
415	C109	5345-106C0951	CAP,MINI ELE 10 μ /16V	716	C405	5359-S010J222	CAP,PPP 2200P				
415	C110	5345-106C0951	CAP,MINI ELE 10 μ /16V	716	C406	5359-S010J222	CAP,PPP 2200P				
424	C111	5359-1825851	CAP,PPP 1800P	712	C407	5345-475F041	CAP,MINI ELE 4.7 μ /50V				
424	C112	5359-1825851	CAP,PPP 1800P	712	C408	5345-475F041	CAP,MINI ELE 4.7 μ /50V				
420	C113	5345-477C041	CAP,MINI ELE 470 μ /16V	712	C409	5345-475F041	CAP,MINI ELE 4.7 μ /50V				
420	C114	5345-477C041	CAP,MINI ELE 470 μ /16V	712	C410	5345-475F041	CAP,MINI ELE 4.7 μ /50V				
425	C115	5359-1225851	CAP,PPP 1200P	715	C411	5345-226D041	CAP,MINI ELE 22 μ /25V				
425	C116	5359-1225851	CAP,PPP 1200P	715	C412	5345-226D041	CAP,MINI ELE 22 μ /25V				
485	C201	5359-S010J152	CAP,PPP 1500P	713	C413	5345-476C041	CAP,MINI ELE 47 μ /16V				
485	C202	5359-S010J152	CAP,PPP 1500P	650	C505	5345-106C0951	CAP,MINI ELE 10 μ /16V				
484	C203	5359-S010J122	CAP,PPP 1200P	650	C506	5345-106C0951	CAP,MINI ELE 10 μ /16V				
484	C204	5359-S010J122	CAP,PPP 1200P	952	C601	5354-393J1HM	CAP,MYL .039 μ				
486	C205	5359-S010J273	CAP,PPP 0.027	953	C602	5359-S010J22	CAP,PPP 1200P				
486	C206	5359-S010J273	CAP,PPP 0.027	952	C603	5354-393J1HM	CAP,MYL .039 μ				
487	C207	5359-S010J562	CAP,PPP 5600P	953	C604	5359-S010J22	CAP,PPP 1200P				
487	C208	5359-S010J562	CAP,PPP 5600P	955	C605	5345-105F041	CAP,MINI ELE 1 μ /50V				
488	C209	5359-S010J222	CAP,PPP 2200P	955	C606	5345-105F041	CAP,MINI ELE 1 μ /50V				
488	C210	5359-S010J222	CAP,PPP 2200P	956	C607	5345-476C041	CAP,MINI ELE 47 μ /16V				
476	C211	5345-105F0951	CAP,MINI ELE 1 μ /50V	956	C608	5345-476C041	CAP,MINI ELE 47 μ /16V				
476	C212	5345-105F0951	CAP,MINI ELE 1 μ /50V	956	C609	5345-476C041	CAP,MINI ELE 47 μ /16V				
491	C213	5359-S010J123	CAP,PPP .012 μ	956	C610	5345-476C041	CAP,MINI ELE 47 μ /16V				
491	C214	5359-S010J123	CAP,PPP .012 μ	956	C611	5345-106C041	CAP,MINI ELE 10 μ /16V				
477	C215	5345-476C0951	CAP,MINI ELE 47 μ /16V	956	C612	5345-106C041	CAP,MINI ELE 10 μ /16V				
477	C216	5345-476C0951	CAP,MINI ELE 47 μ /16V	934	C655	5345-476C041	CAP,MINI ELE 47 μ /16V				
482	C217	5345-225F0951	CAP,MINI ELE 2.2 μ /50V	934	C656	5345-476C041	CAP,MINI ELE 47 μ /16V				
482	C218	5345-225F0951	CAP,MINI ELE 2.2 μ /50V	683	C701	5345-106F041	CAP,MINI ELE 10 μ /50V				
480	C221	5345-227B0952	CAP,MINI ELE 220 μ /10V	683	C702	5345-106F041	CAP,MINI ELE 10 μ /50V				
480	C222	5345-227B0952	CAP,MINI ELE 220 μ /10V	893	C751	5354-473J1HM	CAP,MYL .047 μ				
481	C223	5345-227C041	CAP,MINI ELE 220 μ /16V	891	C752	5345-476C041	CAP,MINI ELE 47 μ /16V				
481	C224	5345-227C041	CAP,MINI ELE 220 μ /16V	891	C753	5345-476C041	CAP,MINI ELE 47 μ /16V				
479	C225	5345-105F0951	CAP,MINI ELE 1 μ /50V	894	C755	5359-S010J822	CAP,PPP 8200P				
479	C226	5345-105F0951	CAP,MINI ELE 1 μ /50V	867	C801	5359-S010J103	CAP,PPP .01 μ				
489	C227	5359-S010J472	CAP,PPP 4700P	RESISTORS							
489	C228	5359-S010J472	CAP,PPP 4700P	434	R101	5135-470522	RES,CBN 1/2P 47				
483	C233	5345-105F0951	CAP,MINI ELE 1 μ /50V	434	R102	5135-470522	RES,CBN 1/2P 47				
483	C234	5345-105F0951	CAP,MINI ELE 1 μ /50V	435	R103	5135-124522	RES,CBN 1/2P 120K				
475	C235	5345-104F0951	CAP,MINI ELE 0.1 μ /50V	435	R104	5135-124522	RES,CBN 1/2P 120K				
475	C236	5345-104F0951	CAP,MINI ELE 0.1 μ /50V	436	R105	5135-272522	RES,CBN 1/2P 2.7K				
490	C237	5359-S010J222	CAP,PPP 2200P	436	R106	5135-272522	RES,CBN 1/2P 2.7K				
490	C238	5359-S010J222	CAP,PPP 2200P	437	R107	5135-470522	RES,CBN 1/2P 47				
547	C301	5354-S040K103	CAP,MYL .01 μ	437	R108	5135-470522	RES,CBN 1/2P 47				
556	C302	5361-100J434	CAP,CER 10P	438	R109	5135-394522	RES,CBN 1/2P 390K				
542	C303	5342-106D041	CAP,ELE BP 10 μ /25V	438	R110	5135-394522	RES,CBN 1/2P 390K				
551	C305	5359-S010J153	CAP,PPP .015 μ	439	R111	5135-820522	RES,CBN 1/2P 82				
543	C306	5345-106E041	CAP,MINI ELE 10 μ /35V	439	R112	5135-820522	RES,CBN 1/2P 82				
552	C307	5359-S010J332	CAP,PPP 3300P	441	R113	5135-124522	RES,CBN 1/2P 120K				
552	C308	5359-S010J332	CAP,PPP 3300P	441	R114	5135-124522	RES,CBN 1/2P 120K				
557	C309	5361-1010423	CAP,CER 100P	442	R115	5135-153522	RES,CBN 1/2P 15K				
557	C310	5361-1010423	CAP,CER 100P	442	R116	5135-153522	RES,CBN 1/2P 15K				
558	C311	5361-4710423	CAP,CER 470P	443	R117	5135-473522	RES,CBN 1/2P 47K				
558	C312	5361-4710423	CAP,CER 470P	443	R118	5135-473522	RES,CBN 1/2P 47K				
559	C313	5359-S010J561	CAP,PPP 560P	444	R119	5135-203522	RES,CBN 1/2P 20K				
559	C314	5359-S010J561	CAP,PPP 560P	444	R120	5135-203522	RES,CBN 1/2P 20K				
548	C315	5354-104593	CAP,MYL .1 μ	445	R121	5135-271522	RES,CBN 1/2P 270				
548	C316	5354-104593	CAP,MYL .1 μ	445	R122	5135-271522	RES,CBN 1/2P 270				
553	C317	5359-S010J103	CAP,PPP .01 μ	446	R123	5135-820522	RES,CBN 1/2P 82				
553	C318	5359-S010J103	CAP,PPP .01 μ	446	R124	5135-820522	RES,CBN 1/2P 82				
554	C319	5359-S010J223	CAP,PPP .022 μ	447	R125	5135-473522	RES,CBN 1/2P 47K				
554	C320	5359-S010J223	CAP,PPP .022 μ	448	R127	5135-105522	RES,CBN 1/2P 1M				
543	C321	5345-106E041	CAP,MINI ELE 10 μ /35V	448	R128	5135-105522	RES,CBN 1/2P 1M				
543	C322	5345-106E041	CAP,MINI ELE 10 μ /35V	449	R129	5135-332522	RES,CBN 1/2P 3.3K				
543	C323	5345-106E041	CAP,MINI ELE 10 μ /35V	449	R130	5135-332522	RES,CBN 1/2P 3.3K				
543	C324	5345-106E041	CAP,MINI ELE 10 μ /35V	450	R131	5135-471522	RES,CBN 1/2P 470				
542	C325	5342-106D041	CAP,ELE BP 10 μ /25V	450	R132	5135-471522	RES,CBN 1/2P 470				
914	C351	5345-225F0951	CAP,MINI ELE 2.2 μ /50V	451	R133	5135-221522	RES,CBN 1/2P 220				
914	C352	5345-225F0951	CAP,MINI ELE 2.2 μ /50V	451	R134	5135-221522	RES,CBN 1/2P 220				
916	C353	5345-107B0951	CAP,MINI ELE 100 μ /10V	451	R135	5135-221522	RES,CBN 1/2P 220				

Ser.No.	Ref.No.	Part No.	Description	Ser.No.	Ref.No.	Part No.	Description
451	R136	5135-221522	RES,CBN 1/2P 220	575	R328	5135-471522	RES,CBN 1/2P 470
453	R137	5135-104522	RES,CBN 1/2P 100K	576	R329	5135-123522	RES,CBN 1/2P 12K
453	R138	5135-104522	RES,CBN 1/2P 100K	576	R330	5135-123522	RES,CBN 1/2P 12K
431	R139	5135-121522	RES,CBN 1/2P 120	919	R351	5135-102522	RES,CBN 1/2P 1K
431	R140	5135-121522	RES,CBN 1/2P 120	919	R352	5135-102522	RES,CBN 1/2P 1K
454	R145	5135-102522	RES,CBN 1/2P 1K	920	R353	5135-473522	RES,CBN 1/2P 47K
454	R146	5135-102522	RES,CBN 1/2P 1K	920	R354	5135-473522	RES,CBN 1/2P 47K
497	R203	5135-222522	RES,CBN 1/2P 2.2K	921	R355	5135-182522	RES,CBN 1/2P 1.8K
497	R204	5135-222522	RES,CBN 1/2P 2.2K	921	R356	5135-182522	RES,CBN 1/2P 1.8K
498	R205	5135-104522	RES,CBN 1/2P 100K	922	R357	5135-101522	RES,CBN 1/2P 100
498	R206	5135-104522	RES,CBN 1/2P 100K	922	R358	5135-101522	RES,CBN 1/2P 100
499	R207	5135-223522	RES,CBN 1/2P 22K	923	R359	5135-622522	RES,CBN 1/2P 6.2K
499	R208	5135-223522	RES,CBN 1/2P 22K	923	R360	5135-622522	RES,CBN 1/2P 6.2K
500	R209	5135-392522	RES,CBN 1/2P 3.9K	924	R361	5135-272522	RES,CBN 1/2P 2.7K
500	R210	5135-392522	RES,CBN 1/2P 3.9K	924	R362	5135-272522	RES,CBN 1/2P 2.7K
501	R211	5135-272522	RES,CBN 1/2P 2.7K	922	R365	5135-101522	RES,CBN 1/2P 100
501	R212	5135-272522	RES,CBN 1/2P 2.7K	922	R366	5135-101522	RES,CBN 1/2P 100
502	R213	5135-183522	RES,CBN 1/2P 18K	926	R369	5135-331522	RES,CBN 1/2P 330
502	R214	5135-183522	RES,CBN 1/2P 18K	926	R370	5135-331522	RES,CBN 1/2P 330
503	R215	5135-123522	RES,CBN 1/2P 12K	927	R371	5135-220522	RES,CBN 1/2P 22
503	R216	5135-123522	RES,CBN 1/2P 12K	927	R372	5135-220522	RES,CBN 1/2P 22
504	R217	5135-471522	RES,CBN 1/2P 470	719	R401	5135-472522	RES,CBN 1/2P 4.7K
504	R218	5135-471522	RES,CBN 1/2P 470	719	R402	5135-472522	RES,CBN 1/2P 4.7K
505	R219	5135-222522	RES,CBN 1/2P 2.2K	720	R403	5135-103522	RES,CBN 1/2P 10K
505	R220	5135-222522	RES,CBN 1/2P 2.2K	720	R404	5135-103522	RES,CBN 1/2P 10K
506	R221	5135-472522	RES,CBN 1/2P 4.7K	721	R405	5135-104522	RES,CBN 1/2P 100K
506	R222	5135-472522	RES,CBN 1/2P 4.7K	721	R406	5135-104522	RES,CBN 1/2P 100K
507	R223	5135-104522	RES,CBN 1/2P 100K	723	R407	5135-222522	RES,CBN 1/2P 2.2K
507	R224	5135-104522	RES,CBN 1/2P 100K	723	R408	5135-222522	RES,CBN 1/2P 2.2K
508	R225	5135-181522	RES,CBN 1/2P 180	724	R409	5135-273522	RES,CBN 1/2P 27K
508	R226	5135-181522	RES,CBN 1/2P 180	724	R410	5135-273522	RES,CBN 1/2P 27K
510	R227	5135-122522	RES,CBN 1/2P 1.2K	725	R411	5135-223522	RES,CBN 1/2P 22K
510	R228	5135-122522	RES,CBN 1/2P 1.2K	725	R412	5135-223522	RES,CBN 1/2P 22K
509	R231	5135-821522	RES,CBN 1/2P 820	726	R415	5135-334522	RES,CBN 1/2P 330K
509	R232	5135-821522	RES,CBN 1/2P 820	726	R416	5135-334522	RES,CBN 1/2P 330K
515	R233	5135-272522	RES,CBN 1/2P 2.7K	720	R417	5135-103522	RES,CBN 1/2P 10K
515	R234	5135-272522	RES,CBN 1/2P 2.7K	720	R418	5135-103522	RES,CBN 1/2P 10K
510	R235	5135-122522	RES,CBN 1/2P 1.2K	727	R419	5135-331522	RES,CBN 1/2P 330
510	R236	5135-122522	RES,CBN 1/2P 1.2K	727	R420	5135-331522	RES,CBN 1/2P 330
512	R237	5135-104522	RES,CBN 1/2P 100K	723	R421	5135-222522	RES,CBN 1/2P 2.2K
512	R238	5135-104522	RES,CBN 1/2P 100K	719	R422	5135-472522	RES,CBN 1/2P 4.7K
513	R239	5135-151522	RES,CBN 1/2P 150	719	R423	5135-472522	RES,CBN 1/2P 4.7K
513	R240	5135-151522	RES,CBN 1/2P 150	728	R424	5135-102522	RES,CBN 1/2P 1K
516	R241	5135-820522	RES,CBN 1/2P 82	730	R425	5135-100522	RES,CBN 1/2P 10
516	R242	5135-820522	RES,CBN 1/2P 82	719	R427	5135-472522	RES,CBN 1/2P 4.7K
495	R243	5135-473522	RES,CBN 1/2P 47K	719	R428	5135-472522	RES,CBN 1/2P 4.7K
495	R244	5135-473522	RES,CBN 1/2P 47K	719	R429	5135-472522	RES,CBN 1/2P 4.7K
493	▲R245	5102-1014715	RES,FUSE 100	719	R430	5135-472522	RES,CBN 1/2P 4.7K
493	▲R246	5102-1014715	RES,FUSE 100	729	R431	5135-334522	RES,CBN 1/2P 330K
517	R247	5135-331522	RES,CBN 1/2P 330	729	R432	5135-334522	RES,CBN 1/2P 330K
517	R248	5135-331522	RES,CBN 1/2P 330	958	R601	5135-393522	RES,CBN 1/2P 39K
518	R249	5135-153522	RES,CBN 1/2P 15K	958	R602	5135-393522	RES,CBN 1/2P 39K
518	R250	5135-153522	RES,CBN 1/2P 15K	959	R603	5135-472522	RES,CBN 1/2P 4.7K
561	R301	5135-5R6522	RES,CBN 1/2P 5.6	959	R604	5135-472522	RES,CBN 1/2P 4.7K
561	R302	5135-5R6522	RES,CBN 1/2P 5.6	960	R605	5135-104522	RES,CBN 1/2P 100K
563	R303	5135-333522	RES,CBN 1/2P 33K	960	R606	5135-104522	RES,CBN 1/2P 100K
563	R304	5135-333522	RES,CBN 1/2P 33K	961	R607	5135-102522	RES,CBN 1/2P 1K
569	R305	5135-820522	RES,CBN 1/2P 82	961	R608	5135-102522	RES,CBN 1/2P 1K
538	▲R306	5102-6804715	RES,FUSE 68	962	R609	5135-122522	RES,CBN 1/2P 1.2K
564	R307	5135-103522	RES,CBN 1/2P 10K	962	R610	5135-122522	RES,CBN 1/2P 1.2K
564	R309	5135-103522	RES,CBN 1/2P 10K	963	R611	5135-103522	RES,CBN 1/2P 10K
565	R310	5135-473522	RES,CBN 1/2P 47K	963	R612	5135-103522	RES,CBN 1/2P 10K
562	R311	5135-220522	RES,CBN 1/2P 22	963	R613	5135-103522	RES,CBN 1/2P 10K
566	R312	5135-472522	RES,CBN 1/2P 4.7K	965	R614	5135-103522	RES,CBN 1/2P 10K
567	R313	5135-822522	RES,CBN 1/2P 8.2K	967	R615	5135-220522	RES,CBN 1/2P 22
566	R314	5135-472522	RES,CBN 1/2P 4.7K	969	R617	5135-473522	RES,CBN 1/2P 47K
567	R315	5135-822522	RES,CBN 1/2P 8.2K	969	R618	5135-473522	RES,CBN 1/2P 47K
564	R316	5135-103522	RES,CBN 1/2P 10K	967	R619	5135-220522	RES,CBN 1/2P 22
568	R317	5135-154522	RES,CBN 1/2P 150K	967	R620	5135-220522	RES,CBN 1/2P 22
568	R318	5135-154522	RES,CBN 1/2P 150K	967	R621	5135-220522	RES,CBN 1/2P 22
571	R319	5135-333522	RES,CBN 1/2P 33K	969	R622	5135-473522	RES,CBN 1/2P 47K
571	R320	5135-333522	RES,CBN 1/2P 33K	969	R625	5135-473522	RES,CBN 1/2P 47K
572	R321	5135-102522	RES,CBN 1/2P 1K	964	R626	5135-153522	RES,CBN 1/2P 15K
572	R322	5135-102522	RES,CBN 1/2P 1K	964	R627	5135-153522	RES,CBN 1/2P 15K
577	R323	5135-121522	RES,CBN 1/2P 120	964	R628	5135-153522	RES,CBN 1/2P 15K
577	R324	5135-121522	RES,CBN 1/2P 120	970	R629	5135-471522	RES,CBN 1/2P 470
574	R325	5135-561522	RES,CBN 1/2P 560	970	R630	5135-471522	RES,CBN 1/2P 470
574	R326	5135-561522	RES,CBN 1/2P 560	961	R631	5135-102522	RES,CBN 1/2P 1K

Ser.No.	Ref.No.	Part No.	Description	Ser.No.	Ref.No.	Part No.	Description
961	R632	5135-102522	RES,CBN 1/2P 1K	401	Q103	5611-999L(F)	XISTOR,PNP R
937	R651	5135-103522	RES,CBN 1/2P 10K	401	Q104	5611-999L(F)	XISTOR,PNP R
937	R652	5135-103522	RES,CBN 1/2P 10K	402	Q105	5613-2320L(F)	XISTOR,NPN R
940	R657	5135-101522	RES,CBN 1/2P 100	402	Q106	5613-2320L(F)	XISTOR,NPN R
940	R658	5135-101522	RES,CBN 1/2P 100	401	Q107	5611-999L(F)	XISTOR,PNP R
936	R659	5135-100522	RES,CBN 1/2P 10	401	Q108	5611-999L(F)	XISTOR,PNP R
936	R660	5135-100522	RES,CBN 1/2P 10	402	Q109	5613-2320L(F)	XISTOR,NPN R
R661	5232-472J16P	RES,CBN 1/6P 4.7K		402	Q110	5613-2320L(F)	XISTOR,NPN R
R661	5232-472J16P	RES,CBN 1/6P 4.7K		401	Q111	5611-999L(F)	XISTOR,PNP R
692	R701	5135-222522	RES,CBN 1/2P 2.2K	401	Q112	5611-999L(F)	XISTOR,PNP R
692	R702	5135-222522	RES,CBN 1/2P 2.2K	403	Q113	5616-2SK246GR	FET,N-CH
693	R703	5135-104522	RES,CBN 1/2P 100K	403	Q114	5616-2SK246GR	FET,N-CH
687	R705	5135-103522	RES,CBN 1/2P 10K	404	Q115	5613-UN4214	XISTOR,NPN R
687	R706	5135-103522	RES,CBN 1/2P 10K	463	Q201	5613-UN4214	XISTOR,NPN R
689	R707	5135-392522	RES,CBN 1/2P 3.9K	463	Q202	5613-UN4214	XISTOR,NPN R
689	R708	5135-392522	RES,CBN 1/2P 3.9K	463	Q203	5613-UN4214	XISTOR,NPN R
687	R709	5135-103522	RES,CBN 1/2P 10K	463	Q204	5613-UN4214	XISTOR,NPN R
687	R710	5135-103522	RES,CBN 1/2P 10K	463	Q205	5613-UN4214	XISTOR,NPN R
690	R711	5135-223522	RES,CBN 1/2P 22K	463	Q206	5613-UN4214	XISTOR,NPN R
690	R712	5135-223522	RES,CBN 1/2P 22K	464	Q207	5614-1450(T)	XISTOR,NPN A
687	R713	5135-103522	RES,CBN 1/2P 10K	464	Q208	5614-1450(T)	XISTOR,NPN A
687	R714	5135-103522	RES,CBN 1/2P 10K	461	Q209	5613-2320L(F)	XISTOR,NPN R
691	R717	5135-222522	RES,CBN 1/2P 2.2K	461	Q210	5613-2320L(F)	XISTOR,NPN R
687	R718	5135-103522	RES,CBN 1/2P 10K	462	Q211	5611-999L(F)	XISTOR,PNP R
687	R719	5135-103522	RES,CBN 1/2P 10K	462	Q212	5611-999L(F)	XISTOR,PNP R
897	R751	5135-103522	RES,CBN 1/2P 10K	462	Q213	5611-999L(F)	XISTOR,PNP R
898	R752	5135-104522	RES,CBN 1/2P 100K	462	Q214	5611-999L(F)	XISTOR,PNP R
899	R753	5135-331522	RES,CBN 1/2P 330	461	Q215	5613-2320L(F)	XISTOR,NPN R
898	R754	5135-104522	RES,CBN 1/2P 100K	461	Q216	5613-2320L(F)	XISTOR,NPN R
899	R755	5135-331522	RES,CBN 1/2P 330	461	Q217	5613-2320L(F)	XISTOR,NPN R
899	R756	5135-331522	RES,CBN 1/2P 330	461	Q218	5613-2320L(F)	XISTOR,NPN R
902	R757	5135-332522	RES,CBN 1/2P 3.3K	465	Q219	5611-UN4114	XISTOR,PNP R
898	R758	5135-104522	RES,CBN 1/2P 100K	525	Q301	5613-2320(F)	XISTOR,NPN R
903	R759	5135-471522	RES,CBN 1/2P 470	525	Q302	5613-2320(F)	XISTOR,NPN R
904	R761	5135-222522	RES,CBN 1/2P 2.2K	527	Q303	5611-1309A(R)	XISTOR,PNP R
904	R762	5135-222522	RES,CBN 1/2P 2.2K	523	Q304	5613-UN4214	XISTOR,NPN R
868	R801	5102-1005116	RES,FUSE 10	526	Q305	5611-950(Y)	XISTOR,PNP R
872	R804	5135-103522	RES,CBN 1/2P 10K	522	Q306	5613-2120(Y)	XISTOR,NPN R
873	R806	5135-5R6522	RES,CBN 1/2P 5.6	526	Q307	5611-950(Y)	XISTOR,PNP R
873	R807	5135-5R6522	RES,CBN 1/2P 5.6	522	Q308	5613-2120(Y)	XISTOR,NPN R
873	R808	5135-5R6522	RES,CBN 1/2P 5.6	524	Q309	5613-UN4214	XISTOR,NPN R
873	R809	5135-5R6522	RES,CBN 1/2P 5.6	524	Q310	5613-UN4214	XISTOR,NPN R
872	R811	5135-103522	RES,CBN 1/2P 10K	524	Q311	5613-UN4214	XISTOR,NPN R
880	R812	5135-102522	RES,CBN 1/2P 1K	524	Q312	5613-UN4214	XISTOR,NPN R
872	R813	5135-103522	RES,CBN 1/2P 10K	523	Q313	5613-UN4214	XISTOR,NPN R
876	R815	5135-223522	RES,CBN 1/2P 22K	528	Q314	5611-UN4114	XISTOR,PNP R
876	R816	5135-223522	RES,CBN 1/2P 22K	911	Q351	5613-2320L(F)	XISTOR,NPN R
876	R817	5135-223522	RES,CBN 1/2P 22K	911	Q352	5613-2320L(F)	XISTOR,NPN R
876	R818	5135-223522	RES,CBN 1/2P 22K	912	Q353	5611-999L(F)	XISTOR,PNP R
869	R819	5135-473522	RES,CBN 1/2P 47K	912	Q354	5611-999L(F)	XISTOR,PNP R
869	R820	5135-473522	RES,CBN 1/2P 47K	912	Q355	5611-999L(F)	XISTOR,PNP R
869	R821	5135-473522	RES,CBN 1/2P 47K	912	Q356	5611-999L(F)	XISTOR,PNP R
869	R822	5135-473522	RES,CBN 1/2P 47K	913	Q357	5616-2SK246BL	FET,N-CH
869	R823	5135-473522	RES,CBN 1/2P 47K	913	Q358	5616-2SK246BL	FET,N-CH
874	R825	5135-471522	RES,CBN 1/2P 470	705	Q401	5613-3311A(R)	XISTOR,NPN R
874	R826	5135-471522	RES,CBN 1/2P 470	705	Q402	5613-3311A(R)	XISTOR,NPN R
869	R827	5135-473522	RES,CBN 1/2P 47K	705	Q403	5613-3311A(R)	XISTOR,NPN R
875	R828	5135-331522	RES,CBN 1/2P 330	705	Q404	5613-3311A(R)	XISTOR,NPN R
880	R829	5135-102522	RES,CBN 1/2P 1K	704	Q405	5611-999(F)	XISTOR,PNP R
876	R830	5135-32522	RES,CBN 1/2P 3.9K	944	Q601	5613-UN4214	XISTOR,NPN R
870	R831	5135-470522	RES,CBN 1/2P 47	944	Q602	5613-UN4214	XISTOR,NPN R
880	R833	5135-102522	RES,CBN 1/2P 1K	944	Q603	5613-UN4214	XISTOR,NPN R
		INTEGRATED CIRCUITS		944	Q604	5613-UN4214	XISTOR,NPN R
521	IC301	5653-μ1297CA	IC,LINEAR	944	Q605	5613-UN4214	XISTOR,NPN R
701	IC401	5652-NJM4558D	IC,MONO	945	Q606	5611-UN4114	XISTOR,PNP R
702	IC402	5653-BA6138	IC,LINEAR	945	Q607	5611-UN4114	XISTOR,PNP R
941	IC601	5652-NJM4558D	IC,MONO	673	Q701	5613-2878(B)	XISTOR,NPN R
942	IC602	5654-TC4066BP	IC,DIGITAL	673	Q702	5613-2878(B)	XISTOR,NPN R
942	IC603	5654-TC4066BP	IC,DIGITAL	672	Q703	5613-2240(BL)	XISTOR,NPN R
931	IC651	5653-NJM4565D	IC,LINEAR	672	Q704	5613-2240(BL)	XISTOR,NPN R
671	IC701	5654-TC4011BP	IC,DIGITAL	672	Q705	5613-2240(BL)	XISTOR,NPN R
881	IC751	5652-NJM4558D	IC,MONO	677	Q706	5614-1450(T)	XISTOR,NPN A
851	IC801	5653-BA6229	IC,LINEAR	677	Q707	5614-1450(T)	XISTOR,NPN A
		TRANSISTORS		677	Q709	5614-1450(T)	XISTOR,NPN A
402	Q101	5613-2320L(F)	XISTOR,NPN R	677	Q710	5614-1450(T)	XISTOR,NPN A
402	Q102	5613-2320L(F)	XISTOR,NPN R	675	Q713	5611-970(BL)	XISTOR,PNP R
				676	Q714	5611-UN4114	XISTOR,PNP R

Ser.No.	Ref.No.	Part No.	Description	Ser.No.	Ref.No.	Part No.	Description
674	Q715	5613-UN4214	XISTOR,NPN R	795	JL104	4242-R0505800	JUMPER LEAD
676	Q716	5611-UN4114	XISTOR,PNP R	808	CN105	4443-0601102	CONNECTOR
676	Q717	5611-UN4114	XISTOR,PNP R	809	CN301	4443-0201102	CONNECTOR
676	Q718	5611-UN4114	XISTOR,PNP R	818	CN551	4443-04501010	CONNECTOR
676	Q719	5611-UN4114	XISTOR,PNP R	819	CN552	4443-04501007	CONNECTOR
676	Q720	5611-UN4114	XISTOR,PNP R	814	CN801	4443-00501010	CONNECTOR
676	Q721	5611-UN4114	XISTOR,PNP R	814	CN802	4443-00501010	CONNECTOR
673	Q723	5613-2878(B)	XISTOR,NPN R	812	CN803	4443-05501032	CONNECTOR
673	Q724	5613-2878(B)	XISTOR,NPN R	797	LCN801	4163-01301005	CONNECTOR W/W
857	Q801	5613-UN4214	XISTOR,NPN R	798	LCN802	4163-01325007	CONNECTOR W/W
855	Q802	5613-2925(T)	XISTOR,NPN R	799	LCN803	4163-01322005	CONNECTOR W/W
855	Q803	5613-2925(T)	XISTOR,NPN R	471	LC201	5214-13802LC	COMPOSITE
855	Q804	5613-2925(T)	XISTOR,NPN R	471	LC202	5214-13802LC	COMPOSITE
852	Q805	5613-3311A(R)	XISTOR,NPN R	470	LC203	5214-13901LC	COMPOSITE
852	Q806	5613-3311A(R)	XISTOR,NPN R	470	LC204	5214-13901LC	COMPOSITE
853	Q808	5611-UN4114	XISTOR,PNP R	858	PH801	5624-ON3161	PHOTO COUPLR
				533	T301	5923-10303	OSC COIL,10
				776	TP101	4214-132	TERMINAL
				776	TP102	4214-132	TERMINAL
				776	TP103	4214-132	TERMINAL
				776	TP201	4214-132	TERMINAL
				776	TP202	4214-132	TERMINAL
				776	TP203	4214-132	TERMINAL
				776	TP501	4214-132	TERMINAL
				776	TP502	4214-132	TERMINAL
				776	TP751	4214-132	TERMINAL
							PCB-2 FRONT P.C. BOARD
							CAPACITORS
				833	C901	5345-106E041	CAP,MINI ELE 10 μ /35V
				834	C902	5359-S010J103	CAP,PPP .01 μ
				832	C903	5345-476C041	CAP,MINI ELE 47 μ /16V
				830	C904	5342-106C041	CAP,ELE BP 10 μ /16V
				831	C905	5345-106C041	CAP,MINI ELE 10 μ /16V
				835	C906	5361-102KB	CAP,CER 1000P
				835	C907	5361-102KB	CAP,CER 1000P
							RESISTORS
				841	R901	5135-104522	RES,CBN 1/2P 100K
				837	R902	5135-102522	RES,CBN 1/2P 1K
				838	R903	5135-183522	RES,CBN 1/2P 18K
				839	R904	5135-273522	RES,CBN 1/2P 27K
				838	R905	5135-183522	RES,CBN 1/2P 18K
				839	R906	5135-273522	RES,CBN 1/2P 27K
				842	R907	5135-101522	RES,CBN 1/2P 100
				838	R909	5135-183522	RES,CBN 1/2P 18K
				839	R910	5135-273522	RES,CBN 1/2P 27K
				838	R911	5135-183522	RES,CBN 1/2P 18K
				839	R912	5135-273522	RES,CBN 1/2P 27K
				836	R914	5135-473522	RES,CBN 1/2P 47K
				836	R915	5135-473522	RES,CBN 1/2P 47K
				840	R916	5135-822522	RES,CBN 1/2P 8.2K
				840	R917	5135-822522	RES,CBN 1/2P 8.2K
				836	R918	5135-473522	RES,CBN 1/2P 47K
				843	R919	5135-102522	RES,CBN 1/2P 1K
				843	R920	5135-102522	RES,CBN 1/2P 1K
				843	R921	5135-102522	RES,CBN 1/2P 1K
				843	R922	5135-102522	RES,CBN 1/2P 1K
				843	R923	5135-102522	RES,CBN 1/2P 1K
							INTEGRATED CIRCUIT
				821	IC901	5654-MN18787F	IC,DIGITAL
							TRANSISTORS
				823	Q901	5611-UN4114	XISTOR,PNP R
				823	Q902	5611-UN4114	XISTOR,PNP R
				823	Q903	5611-UN4114	XISTOR,PNP R
				823	Q904	5611-UN4114	XISTOR,PNP R
				823	Q905	5611-UN4114	XISTOR,PNP R
				824	Q906	5613-3311A(R)	XISTOR,NPN R
							DIODES
				829	D903	5631-1S2473	DIODE,DET
				829	D904	5631-1S2473	DIODE,DET
				829	D905	5631-1S2473	DIODE,DET
782	A J1	4484-46	PIN JACK,4P				
781	J2	4451-00184	JACK,1P				
781	J3	4451-00184	JACK,1P				
792	JL101	4242-R0503800	JUMPER LEAD				
793	JL102	4242-R0504800	JUMPER LEAD				
794	JL103	4242-R0505800	JUMPER LEAD				

Ser.No.	Ref.No.	Part No.	Description	Ser.No.	Ref.No.	Part No.	Description
CONTROLS							
742	VR901	5109-S0305502	RES,V CBN 5K	669	R516	5135-105522	RES,CBN 1/2P 1M
902				668	R517	5135-223522	RES,CBN 1/2P 22K
746	VR903	5109-S0402502	RES,V CBN 5K	665	R518	5135-123522	RES,CBN 1/2P 12K
746	VR904	5109-S0402502	RES,V CBN 5K	661	R519	5135-682522	RES,CBN 1/2P 6.8K
746	VR905	5109-S0402502	RES,V CBN 5K	661	R520	5135-682522	RES,CBN 1/2P 6.8K
825	RCV901	6143-00802	RECEIV BLOCK	660	R521	5135-562522	RES,CBN 1/2P 5.6K
MISCELLANEOUS							
813	CN901	4443-00401010	CONNECTOR	641	IC501	5653-CXA1332S	IC,LINEAR
813	CN902	4443-00401010	CONNECTOR				
810	CN903	4443-05401032	CONNECTOR				
827	X901	5693-FC4004A4	OSC,CER				
758	FL901	5722-050	TUBE DISPLAY	643	Q501	5613-UN4214	XISTOR,NPN R
845	RC901	5212-S0305273	R COMPOSITE	643	Q502	5613-UN4214	XISTOR,NPN R
846	RC902	5212-S0304104	R COMPOSITE	643	Q503	5613-UN4214	XISTOR,NPN R
735	SW901	4437-00604	PUSH SWITCH	643	Q504	5613-UN4214	XISTOR,NPN R
735	SW902	4437-00604	PUSH SWITCH	643	Q505	5613-UN4214	XISTOR,NPN R
735	SW903	4437-00604	PUSH SWITCH	642	Q506	5611-UN4114	XISTOR,PNP R
735	SW904	4437-00604	PUSH SWITCH	644	Q507	5611-950(Y)	XISTOR,PNP R
735	SW905	4437-00604	PUSH SWITCH	645	Q508	5613-2120(Y)	XISTOR,NPN R
735	SW906	4437-00604	PUSH SWITCH				
733	SW907	4431-S0114204	PUSH SWITCH				
734	SW908	4431-S0116612	PUSH SWITCH				
734	SW909	4431-S0116612	PUSH SWITCH				
734	SW910	4431-S0116612	PUSH SWITCH				
735	SW911	4437-00604	PUSH SWITCH				
735	SW912	4437-00604	PUSH SWITCH				
735	SW913	4437-00604	PUSH SWITCH				
735	SW915	4437-00604	PUSH SWITCH				
735	SW916	4437-00604	PUSH SWITCH				
735	SW917	4437-00604	PUSH SWITCH				
734	SW918	4431-S0116612	PUSH SWITCH				
734	SW919	4431-S0116612	PUSH SWITCH				
734	SW920	4431-S0116612	PUSH SWITCH				
733	SW921	4431-S0114204	PUSH SWITCH				

PCB-3 DOLBY B/C NR P. C. BOARD

CAPACITORS		
649	C501	5345-105F0951
649	C502	5345-105F0951
649	C503	5345-105F0951
649	C504	5345-105F0951
657	C507	5359-S010J222
657	C508	5359-S010J222
657	C509	5359-S010J222
657	C510	5359-S010J222
655	C511	5354-564593
655	C512	5354-564593
656	C513	5354-334593
656	C514	5354-334593
651	C515	5345-106C0951
651	C516	5345-106C0951
652	C517	5345-227B041
652	C518	5345-227B041
657	C519	5359-S010J222
657	C520	5359-S010J222
658	C521	5359-S010J182
658	C522	5359-S010J182
653	C523	5345-107C041
653	C524	5345-107C041

RESISTORS

666	R503	5135-332522	RES,CBN 1/2P 3.3K
666	R504	5135-332522	RES,CBN 1/2P 3.3K
659	R505	5135-822522	RES,CBN 1/2P 8.2K
659	R506	5135-822522	RES,CBN 1/2P 8.2K
662	R507	5174-243381	RES,MTL 1/4 24K
662	R508	5174-243381	RES,MTL 1/4 24K
663	R509	5174-561381	RES,MTL 1/4 560
663	R510	5174-561381	RES,MTL 1/4 560
664	R511	5174-273381	RES,MTL 1/4 27K
670	R512	5135-102522	RES,CBN 1/2P 1K
669	R513	5135-105522	RES,CBN 1/2P 1M
669	R514	5135-105522	RES,CBN 1/2P 1M
669	R515	5135-105522	RES,CBN 1/2P 1M

INTEGRATED CIRCUIT							
641	IC501	5653-CXA1332S	IC,LINEAR				
TRANSISTORS							
643	Q501	5613-UN4214	XISTOR,NPN R				
643	Q502	5613-UN4214	XISTOR,NPN R				
643	Q503	5613-UN4214	XISTOR,NPN R				
643	Q504	5613-UN4214	XISTOR,NPN R				
643	Q505	5613-UN4214	XISTOR,NPN R				
642	Q506	5611-UN4114	XISTOR,PNP R				
644	Q507	5611-950(Y)	XISTOR,PNP R				
645	Q508	5613-2120(Y)	XISTOR,NPN R				
MISCELLANEOUS							
816	CN501	4443-04401010	CONNECTOR				
817	CN502	4443-04401007	CONNECTOR				
647	LC501	5214-13701	LC COMPOSITE				
647	LC502	5214-13701	LC COMPOSITE				

PCB-4 POWER P. C. BOARD

CAPACITORS		
615	▲C1	5352-S010M103
615A	▲C1	5352-1030961
616	C2	5352-S060K104
616	C3	5352-S060K104
616	C4	5352-S060K104
603	C5	5345-228D041
603	C6	5345-228D041
604	C7	5345-227C041
604	C8	5345-227C041
605	C9	5345-108C041
605	C10	5345-108C041
607	C11	5345-478D0962
604	C12	5345-227C041
605	C13	5345-108C041
604	C14	5345-227C041
605	C15	5345-108C041
606	C16	5345-226F041
609	C17	5345-477E041
684	C51	5345-226D041
685	C52	5345-106F041
685	C53	5345-106F041
686	C54	5345-107D041
865	C851	5345-107B041

RESISTORS

042A	R1	5135-335522	RES,CBN 1/2P 3.3M
619	R3	5135-152522	RES,CBN 1/2P 1.5K
619	R4	5135-152522	RES,CBN 1/2P 1.5K
620	R5	5135-471522	RES,CBN 1/2P 470
620	R6	5135-471522	RES,CBN 1/2P 470
621	R7	5135-101522	RES,CBN 1/2P 100
621	R8	5135-101522	RES,CBN 1/2P 100
622	R9	5135-2R7522	RES,CBN 1/2P 2.7
622	R10	5135-2R7522	RES,CBN 1/2P 2.7
619	R11	5135-152522	RES,CBN 1/2P 1.5K
620	R12	5135-471522	RES,CBN 1/2P 470
621	R13	5135-101522	RES,CBN 1/2P 100
623	R14	5135-0R5522	RES,CBN 1/2P .5
619	R15	5135-152522	RES,CBN 1/2P 1.5K
620	R16	5135-471522	RES,CBN 1/2P 470
629	▲R17	5102-104715	RES,FUSE 100
624	R18	5135-5R6522	RES,CBN 1/2P 5.6
626	R19	5135-221522	RES,CBN 1/2P 220
625	R20	5135-223522	RES,CBN 1/2P 22K
625	R21	5135-223522	RES,CBN 1/2P 22K
043A	▲R22	5102-1R05116	RES,FUSE 1
699	R51	5135-331522	RES,CBN 1/2P 330

Ser.No.	Ref.No.	Part No.	Description	Ser.No.	Ref.No.	Part No.	Description
697	R52	5135-562522	RES,CBN 1/2P 5.6K				
696	R53	5135-154522	RES,CBN 1/2P 150K				
700	R54	5135-102522	RES,CBN 1/2P 1K				
700	R55	5135-102522	RES,CBN 1/2P 1K				
695	R56	5135-104522	RES,CBN 1/2P 100K				
694	R57	5135-103522	RES,CBN 1/2P 10K				
698	R58	5135-182522	RES,CBN 1/2P 1.8K				
699	R59	5135-331522	RES,CBN 1/2P 330				
877	R851	5135-102522	RES,CBN 1/2P 1K				
878	R852	5135-471522	RES,CBN 1/2P 470				
879	R853	5135-103522	RES,CBN 1/2P 10K				
877	R854	5135-102522	RES,CBN 1/2P 1K				
			TRANSISTORS				
581	Q1	5612-941(P)	XISTOR,PNP A				
582	Q2	5614-1266(P)	XISTOR,NPN A				
586	Q3	5613-2320(F)	XISTOR,NPN R				
585	Q4	5611-999(F)	XISTOR,PNP R				
586	Q5	5613-2320(F)	XISTOR,NPN R				
585	Q6	5611-999(F)	XISTOR,PNP R				
581	Q7	5612-941(P)	XISTOR,PNP A				
586	Q8	5613-2320(F)	XISTOR,NPN R	UA BK			
587	Q9	5613-2320(F)	XISTOR,NPN R				
581	Q10	5612-941(P)	XISTOR,PNP A				
586	Q11	5613-2320(F)	XISTOR,NPN R				
586	Q12	5613-2320(F)	XISTOR,NPN R				
678	Q51	5611-999(F)	XISTOR,PNP R				
854	Q851	5613-3311A(R)	XISTOR,NPN R				
856	Q852	5611-UN4114	XISTOR,PNP R				
			DIODES				
589	D1	5632-S5566B	DIODE,RECT				
589	D2	5632-S5566B	DIODE,RECT				
589	D3	5632-S5566B	DIODE,RECT				
589	D4	5632-S5566B	DIODE,RECT				
589	D5	5632-S5566B	DIODE,RECT				
589	D6	5632-S5566B	DIODE,RECT				
590	D7	5632-S5566B	DIODE,RECT				
590	D8	5632-S5566B	DIODE,RECT				
591	D9	5635-HZ12B2L	DIODE,ZENER				
591	D10	5635-HZ12B2L	DIODE,ZENER				
591	D11	5635-HZ12B2L	DIODE,ZENER				
592	D12	5635-HZ6B2L	DIODE,ZENER				
593	D13	5635-HZ18-2L	DIODE,ZENER				
594	D14	5635-RD5R1EB3	DIODE,ZENER				
864	D51	5632-S5566B	DIODE,RECT				
864	D52	5632-S5566B	DIODE,RECT				
680	D53	5631-1S2473	DIODE,DET				
682	D54	5635-RD5R1EB2	DIODE,ZENER				
681	D55	5635-RD12EB2	DIODE,ZENER				
864	D56	5632-S5566B	DIODE,RECT				
864	D57	5632-S5566B	DIODE,RECT				
861	D851	5635-HZ3B2	DIODE,ZENER				
			TRANSFORMERS				
601	AT1	5584-S8501	XFORMER,POWER	UA BK			
601A	AT1	5584-S8502	XFORMER,POWER	I IB BB			
			MISCELLANEOUS				
755	AF1	5732-501031	FUSE	UA BK			
755A	AF1	5732-251030	FUSE	I IB BB			
731	AS1	4433-00202	PUSH SWITCH,POWER				
041A	AS2	4411-1047111	ROTARY SWITCH	I IB BB			
805	CN101	4443-030185	CONNECTOR				
806	CN102	4443-040185	CONNECTOR				
807	CN103	4443-050185	CONNECTOR				
807	CN104	4443-050185	CONNECTOR				
754	AHL1	4472-04501	FUSE HOLDER				
754	AHL2	4472-04501	FUSE HOLDER				
777	TM1	4214-122	TERMINAL				
777	TM2	4214-122	TERMINAL				

PCB-5 HEAD PHONE P. C. BOARD**MISCELLANEOUS**

751 J651 4451-51501 JACK,1P

ABBREVIATIONS IN PARTS LIST**CAPACITORS**

CAP,MINI ELE :Electrolytic

RES,CBN 1/6P :Carbon 1/6W

CAP,CER :Ceramic

RES,FUSE :Fuse

CAP,PPP :Polypropylene

RES,CEM 5P :Cement 5W

CAP,MYL :Mylar

RES,MTL 1P :Metal 1W

CAP,MTL :Metal

2.2K :2.2KΩ

CAP,MCA :Mica

220 :220Ω

CAP,MINI BP :Bipolar

CAP,ELE BP :Electrolytic Bipolar

CAP,STY :Polystyrene Film

XISTOR :Transistor

CAP,SPE :Special

FET :Field Effect Transistor

CAP,TAN :Tantalum

470μ :470μF

6800p :6800pF

.047μ :0.047μF

CONTROLS

RES,V CBN :Variable Carbon Resistor

RES,SEMI FIX :Semi-fixed Resistor

CHASSIS MISCELLANEOUS

761 ▲P1 4161-71151 CORD W/PLUG UA BK

761A ▲P1 4161-7256 CORD W/PLUG I IB

761D ▲P1 4161-04100 CORD W/PLUG BB

791 4242-S0232131 JUMPER LEAD

PACKAGE PARTS LIST

021A 1756-06303 LABEL I IB BB

022A 1756-03124 LABEL I BB

022D 1756-03111 LABEL BB

023D 1756-08501 LABEL BB

024D 1111-J30319 OWNER GUIDE BB

106 1111-J30325 OWNER GUIDE UA BK

106A 1111-J30326 OWNER GUIDE I IB

107 1113-717004 OWNER CARD UA BK

111 1119-047 ATTACH SHEET,GUARANTY UA BK

112 1119-0137 ATTACH SHEET,SERVICE

113 1119-01201 STATION GUIDE UA BK

115 1221-28008 ATTACH SHEET,SAFETY UA BK

115A 1221-28005 CARTON BOX UA I

116 1222-7362 CARTON BOX BK IB BB

117 1222-7365 CUSHION

119 1223-R0220055 SOFT SHEET,SET FRONT

123 1241-R0160600 POLYETHY BAG,SET

124 1241-R0123350 POLYETHY BAG,OWNER GUIDE

762 4161-71184 CORD W/PLUG,RCA TYPE

773 4191-0355 BATTERY,DRY

774 6142-02703 REMOTE CONTROL ASSEMBLY

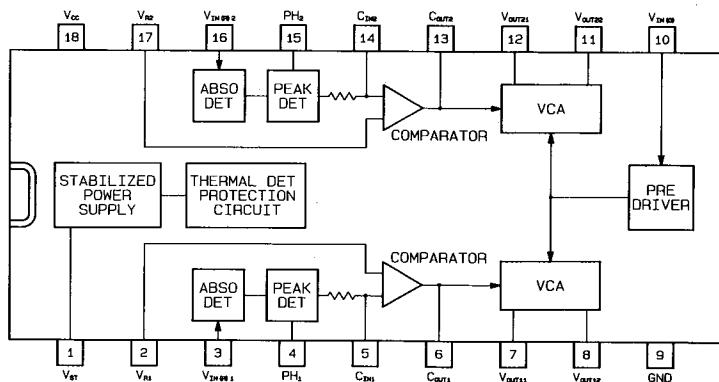
NOTE

! SAFETY RELATED COMPONENT, USE ONLY EXACT

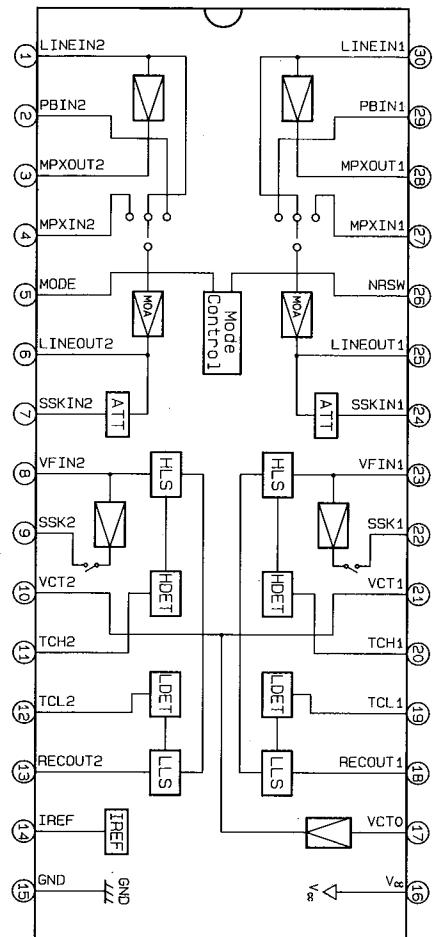
! REPLACEMENT PART AS SPECIFIED.

IC BLOCK DIAGRAM

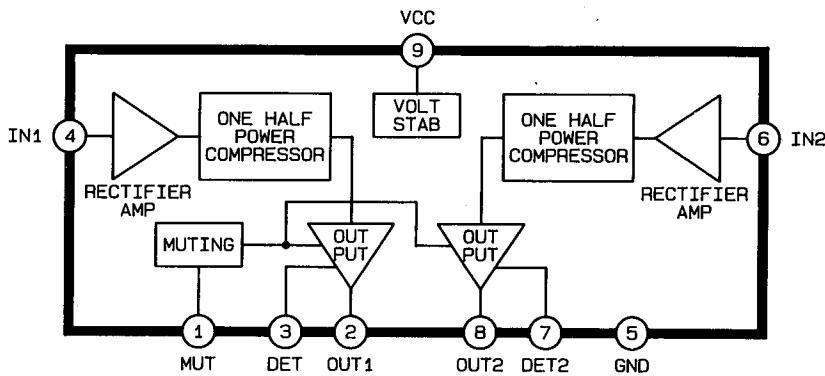
IC301 : μ PC1297CA
Dolby HX Pro



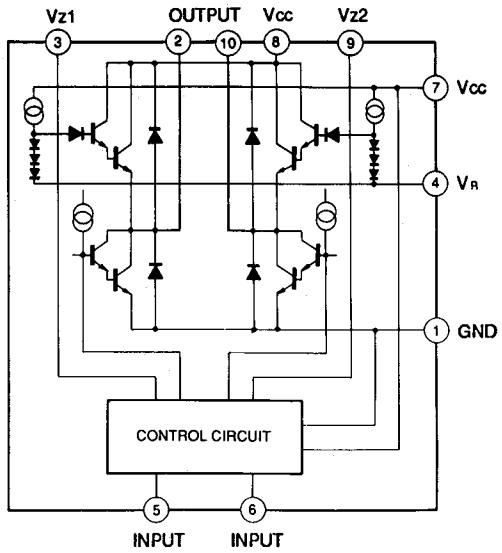
IC501 :CXA1332S
Dolby B/C NR



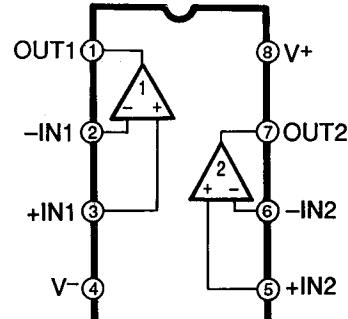
IC402 :BA6138
Signal Level Meter



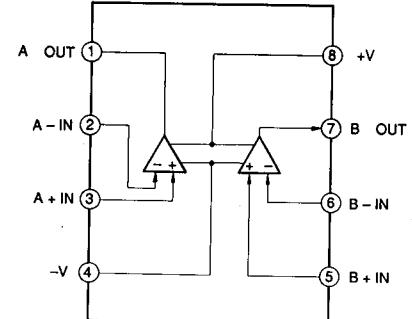
IC801 :BA6229
Motor Driver



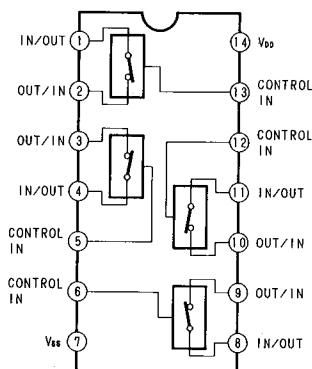
IC651 :NJM4565D
OP-Amp.



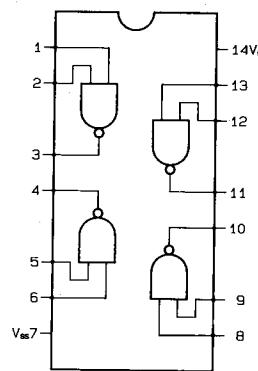
IC401,601,751 :NJM4558D
OP-Amp.



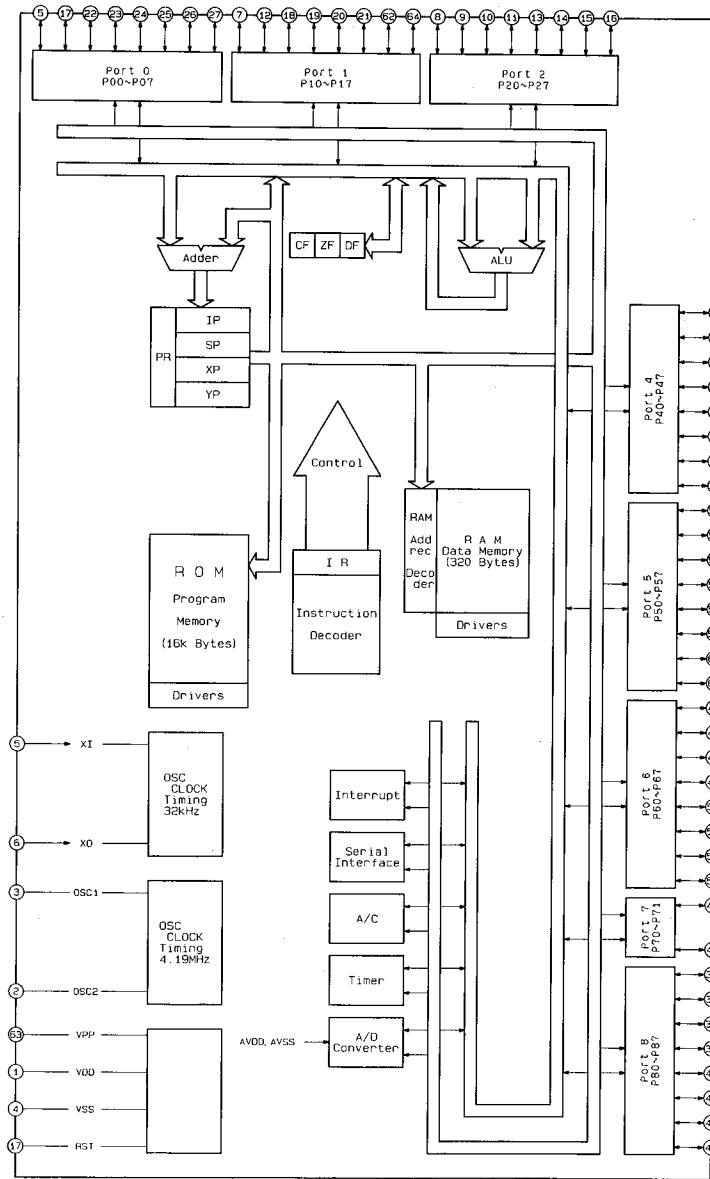
IC602,603 :TC4066BP
Bilateral Switch



IC701 :TC4011BP
2-inch NAND Gate



IC901 :MN18787F
Logic Controller



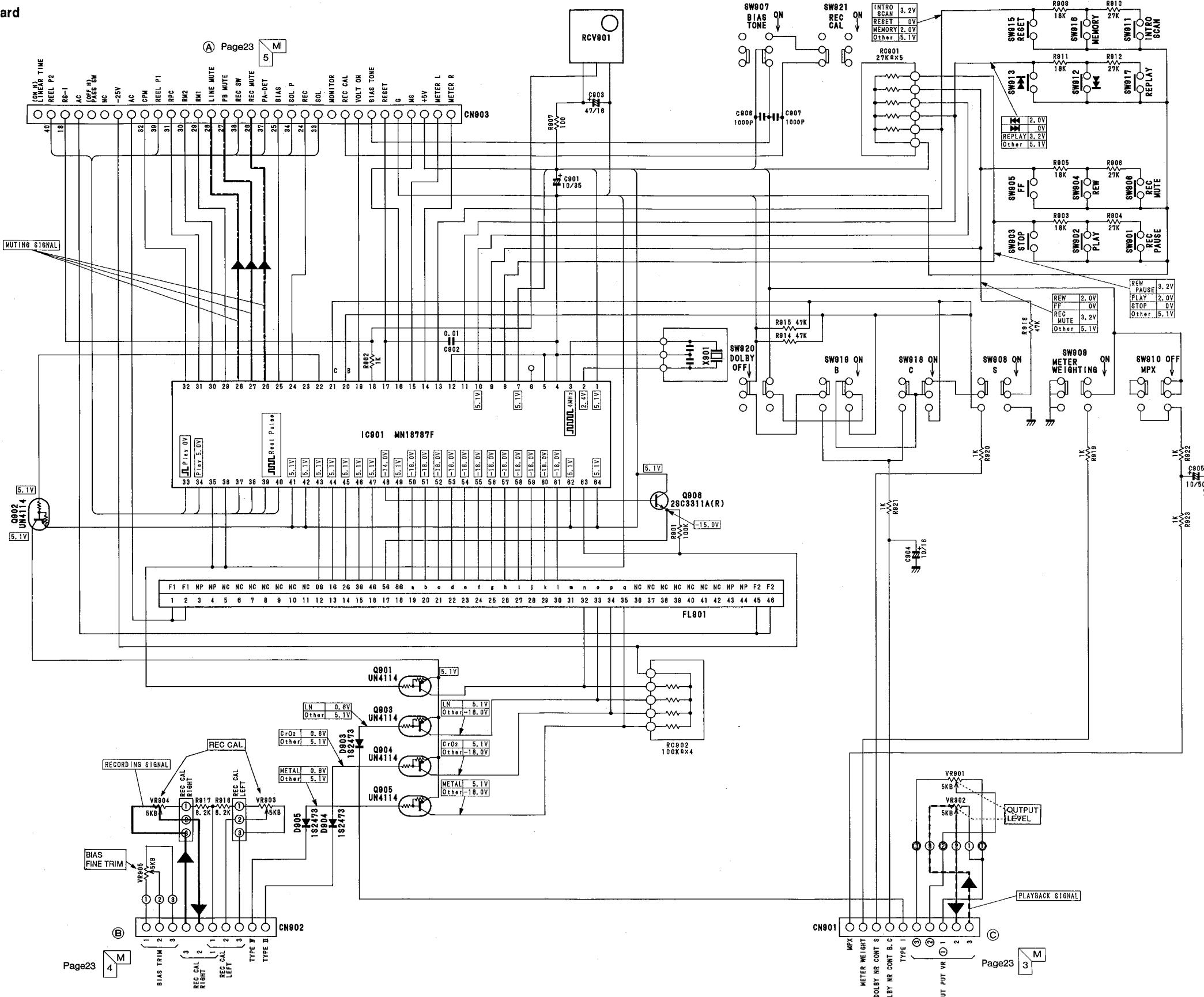
TERMINAL FUNCTIONS

Pin No.	Port name	Function name	I/O	Outline of functions
5	P06	XI	I	Initial setting switch. High level=ON
6	XO	XO	O	
7	P17	AVdd	I	D/A converter standard voltage(DC 5V).
8	P27	AD7	I	Key input terminal.
9	P26	AD6	I	Key input terminal.
10	P25	AD5	I	Key input terminal.
11	P24	AD4	I	Key input terminal.
12	P16	AVss		GND terminal.
13	P23	AD3	I	Key input terminal.
14	P22	AD2	I	A/D input port for LEVEL METER indication.
15	P21	AD1	I	A/D input port for LEVEL METER indication.
16	P20	AD0	I	A/D input port for music search.
17	P07	RST	I	Reset input.
18	1RQ1	R-SI	I	Remote control input.
19	1RQf	VOLT DN	I	Power on/off detection terminal. Low level=OFF
20	P13	DOLBY-B	I	Input port to switch DOLBY display.
21	P12	DOLBY-C	I	Input port to switch DOLBY display.
22	P05	IND.CONT	O	High level on stand-by or display off and after power off.
23	P04	MONITOR	O	High level on MONITOR mode. Low level on SOURCE mode.
24	P03	REC	O	REC/PLAY switching terminal. High level on REC.
25	P02	BIAS	O	BIAS control terminal. High level=BIAS ON
26	P01	REC MUTE	O	Recording amp. muting terminal. High level=MUTING ON
27	P00	PB MUTE	O	Playback amp. muting terminal. High level=MUTING ON
28	P47	LINE MUTE	O	Line muting terminal. High level=MUTING ON
29	P46	RM1	O	Reel motor control. High level=active
30	P45	RM2	O	Reel motor control. High level=active
31	P44	RPC	O	Reel motor power control. High level=power down
32	P43	CPM	O	Capstan motor control.

NOTE: Low level=0V
High level=5.1V

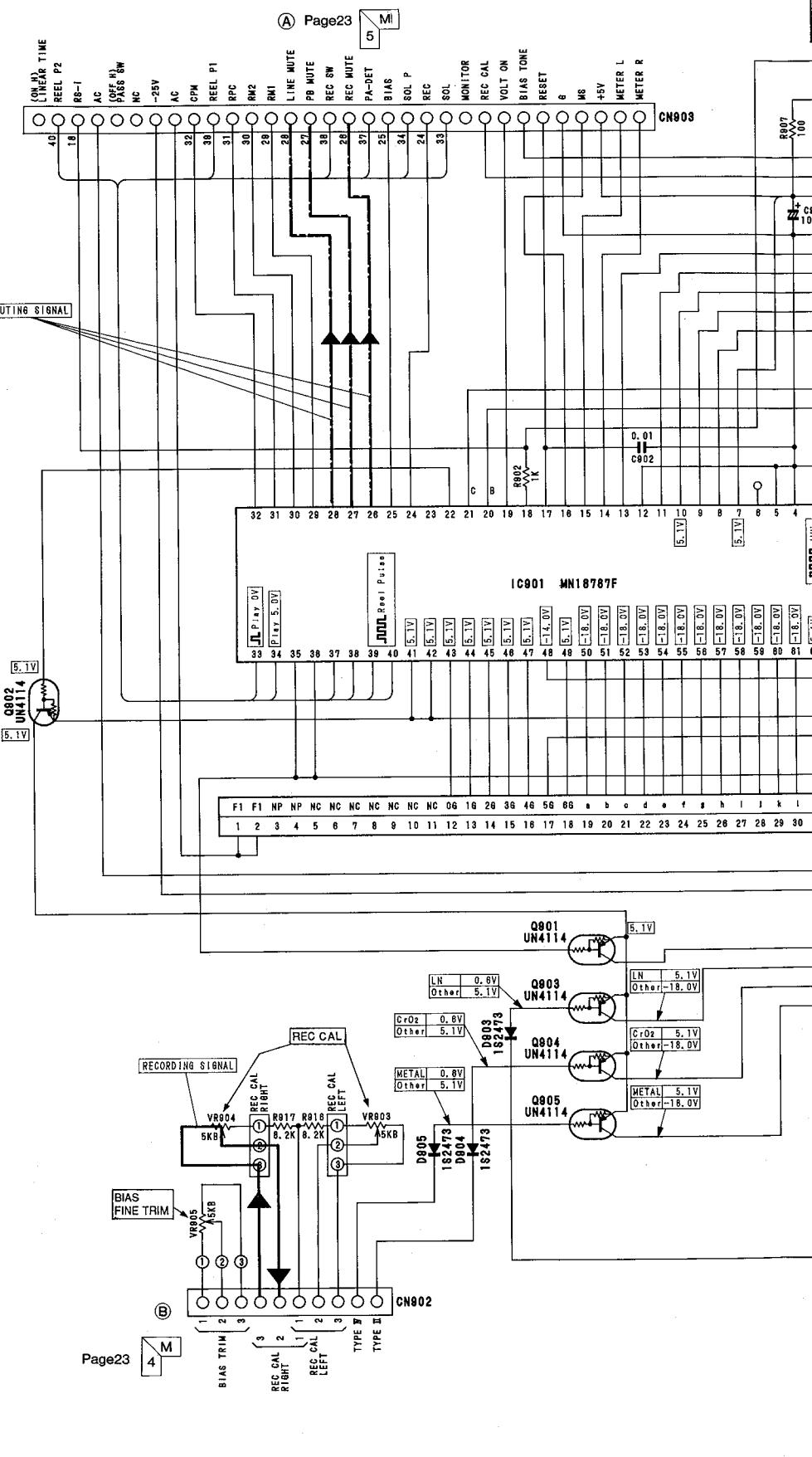
SCHEMATIC DIAGRAM (1)

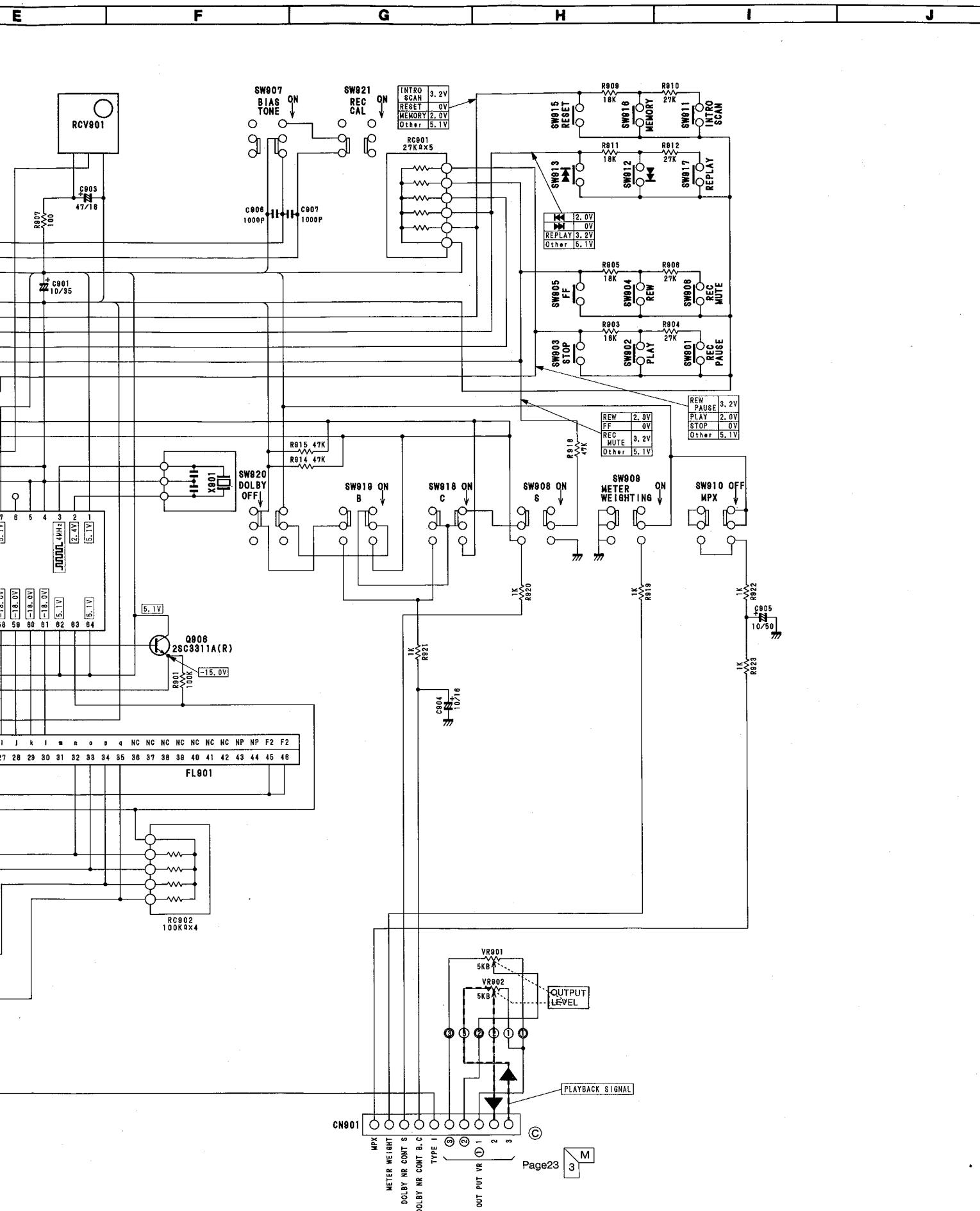
PCB-2 Front P.C. Board



SCHEMATIC DIAGRAM (1)

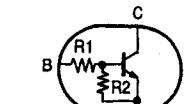
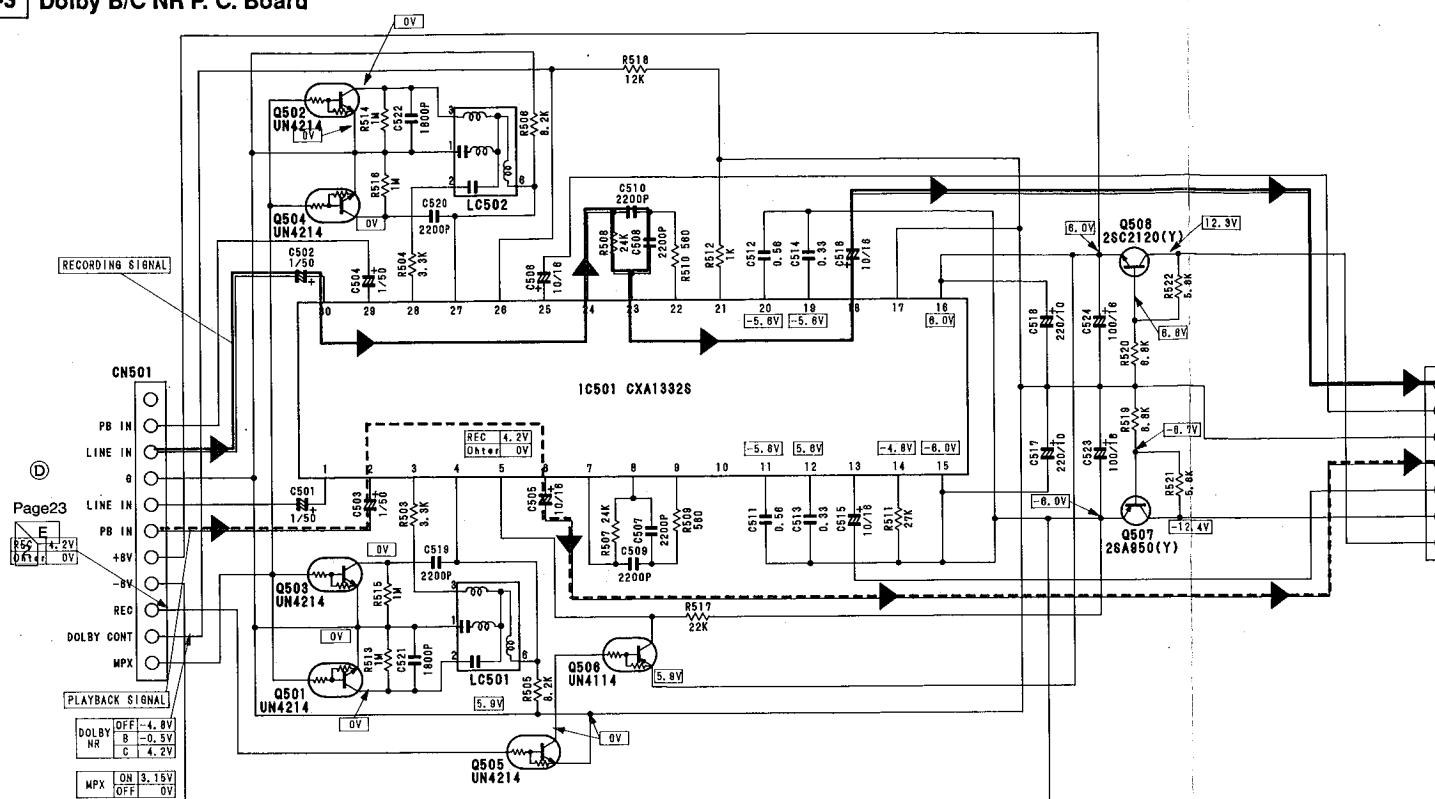
PCB-2 Front P. C. Board



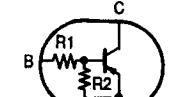


SCHEMATIC DIAGRAM (2)

PCB-3 Dolby B/C NR P. C. Board



Type	R1(kΩ)	R2(kΩ)
UN4214	10	47

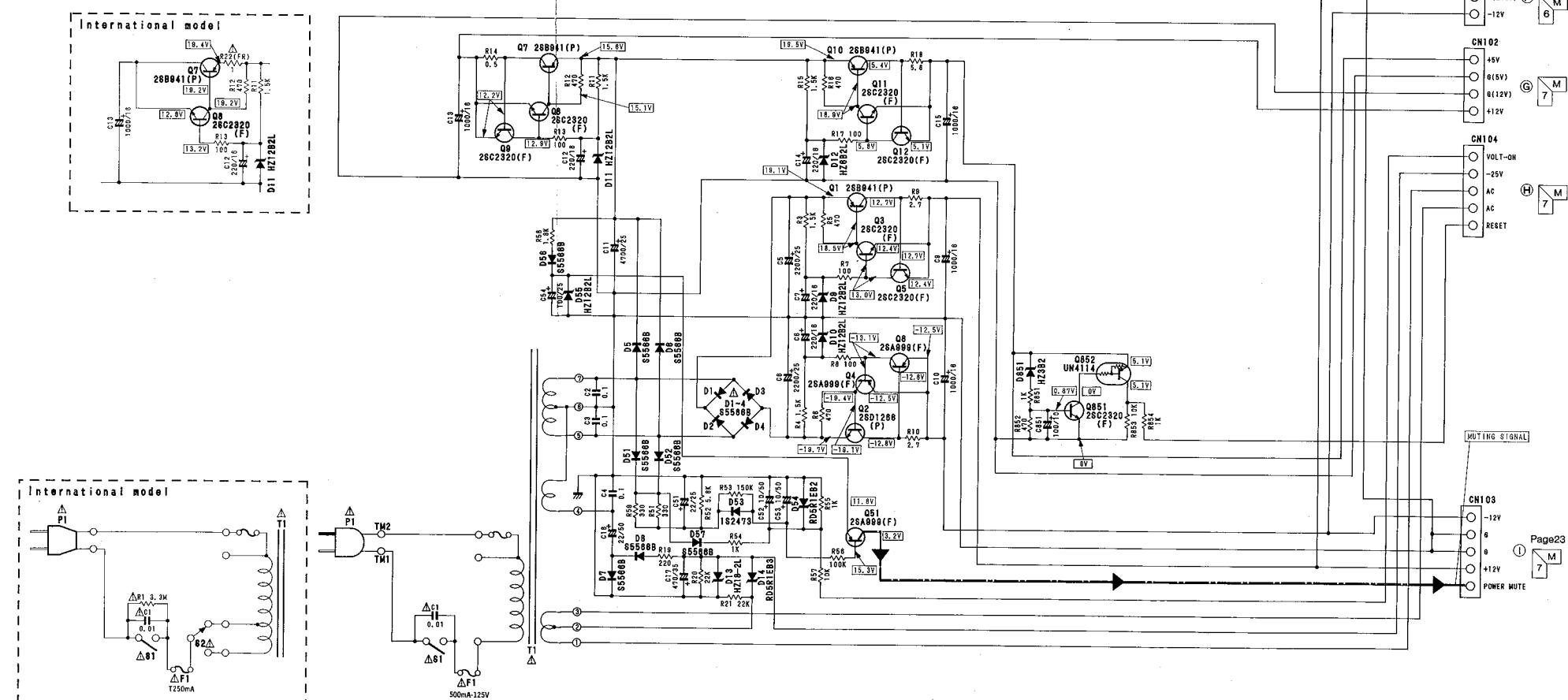


Type	R1(kΩ)	R2(kΩ)
UN4114	10	47
RN2201	4.7	4.7

NOTE

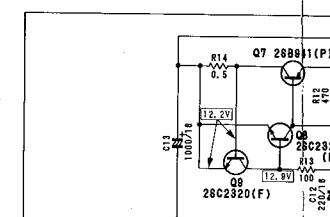
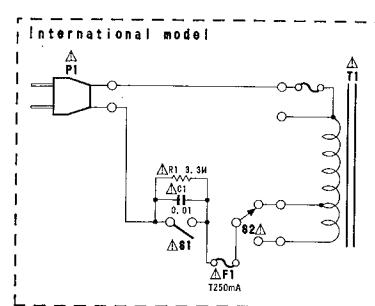
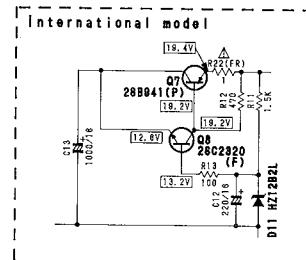
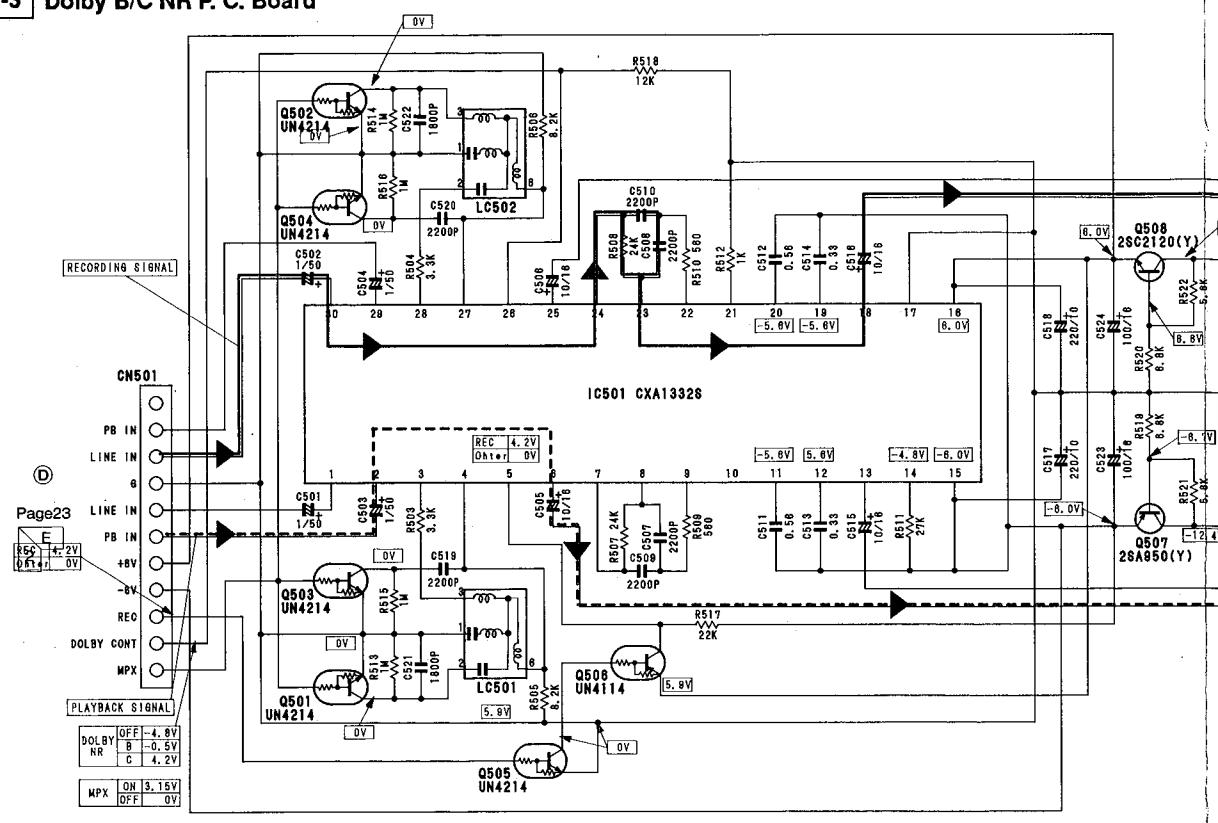
1. ALL RESISTANCES VALUES ARE IN Ω .
 $K\Omega=1000\Omega$, $M\Omega=1000K\Omega$.
 2. THE WATTAGE OF RESISTORS IS 1/4W UNLESS OTHERWISE NOTED.
 3. ALL CAPACITANCES VALUE ARE IN μF UNLESS OTHERWISE NOTED. $P=\mu\mu F$.
 4. ...V : DC VOLTAGE AT NO SIGNAL UNLESS OTHERWISE NOTED.
 5.  SAFETY REQUIREMENTS COMPONENTS IN ACCORDANCE WITH PRESENT SAFETY REGULATIONS, THESE COMPONENTS MUST ONLY BE REPLACED BY ORIGINAL PARTS.

PCB-4 Power P. C. Board

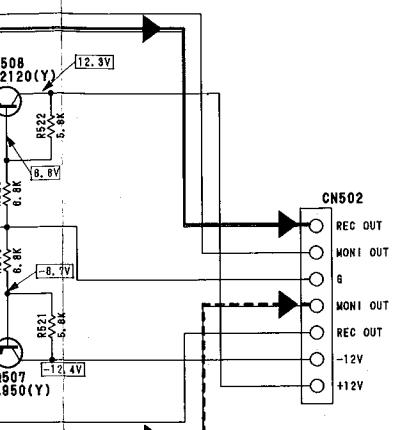


SCHEMATIC DIAGRAM (2)

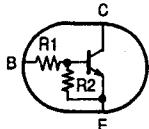
PCB-3 Dolby B/C NR P. C. Board



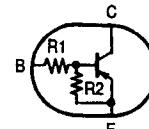
E F G H I J



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2



Type	R1(kΩ)	R2(kΩ)
UN4214	10	47

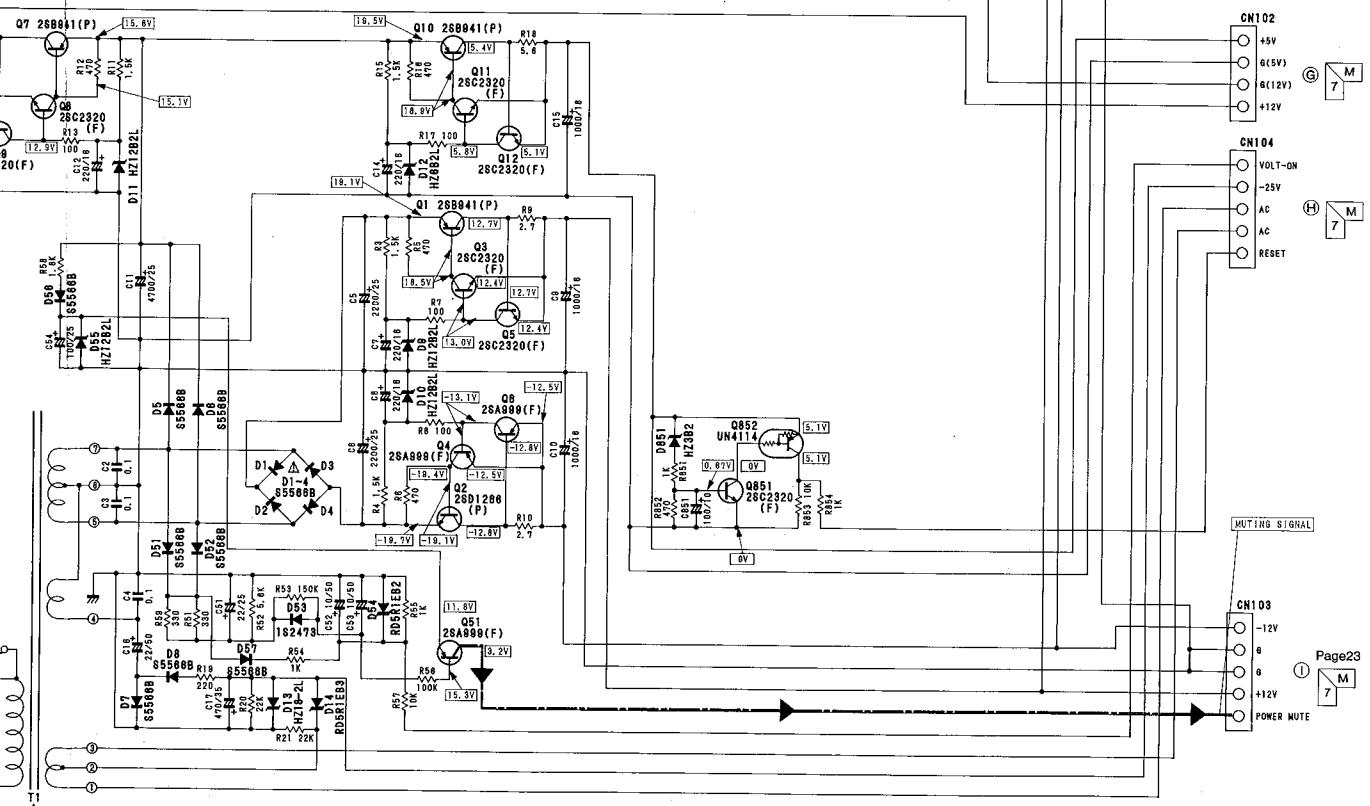


Type	R1(kΩ)	R2(kΩ)
UN4114	10	47
RN2201	4.7	4.7

NOTE:

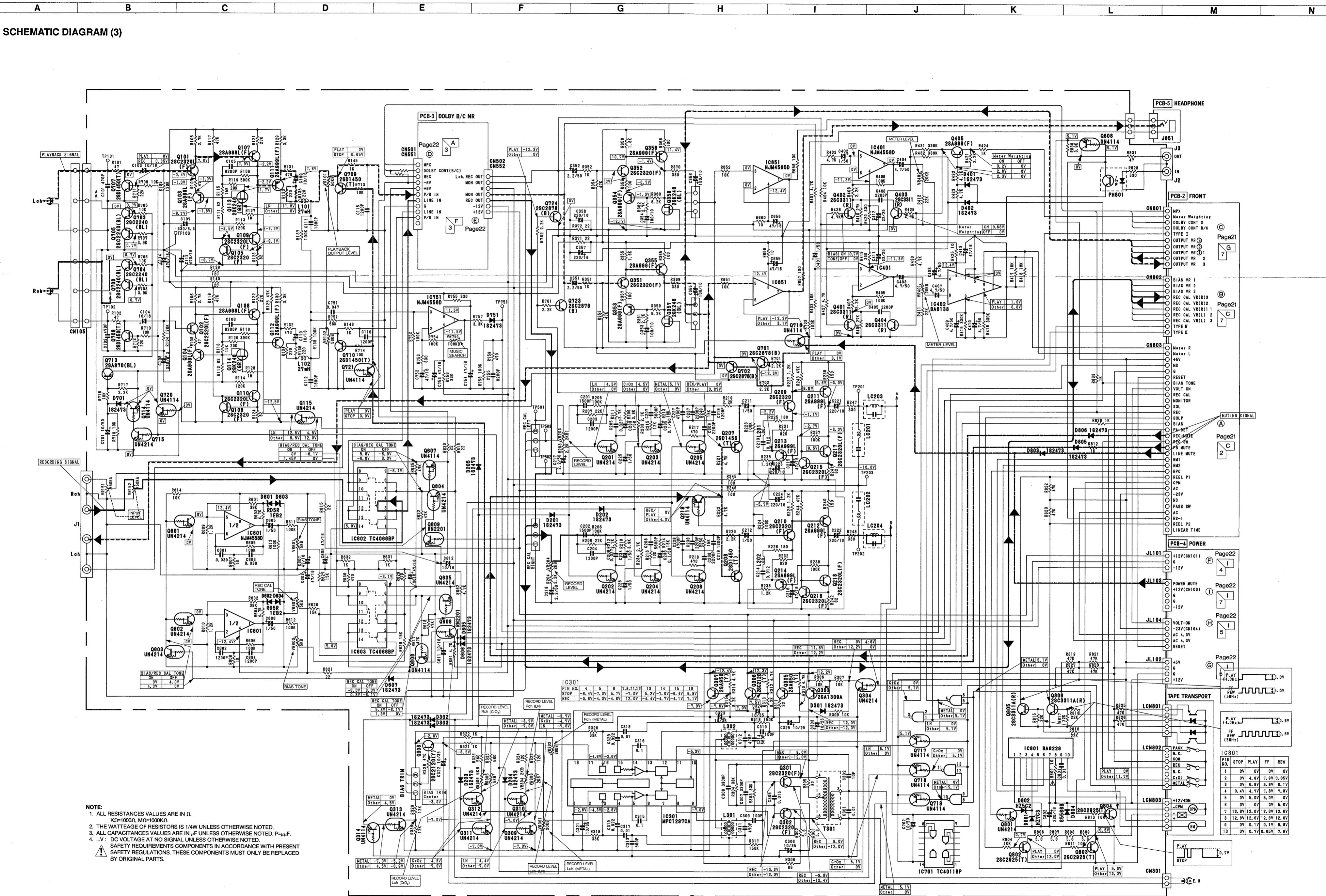
1. ALL RESISTANCES VALUES ARE IN Ω .
 $K\Omega=1000\Omega$, $M\Omega=1000K\Omega$.
2. THE WATTAGE OF RESISTORS IS 1/4W UNLESS OTHERWISE NOTED.
3. ALL CAPACITANCES VALUE ARE IN μF UNLESS OTHERWISE NOTED. $P=\mu\mu F$.
4. ...V : DC VOLTAGE AT NO SIGNAL UNLESS OTHERWISE NOTED.
5. SAFETY REQUIREMENTS COMPONENTS IN ACCORDANCE WITH PRESENT SAFETY REGULATIONS, THESE COMPONENTS MUST ONLY BE REPLACED BY ORIGINAL PARTS.

PCB-4 Power P. C. Board



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M
6

Page23
M
7



SCHEMATIC DIAGRAM (3)

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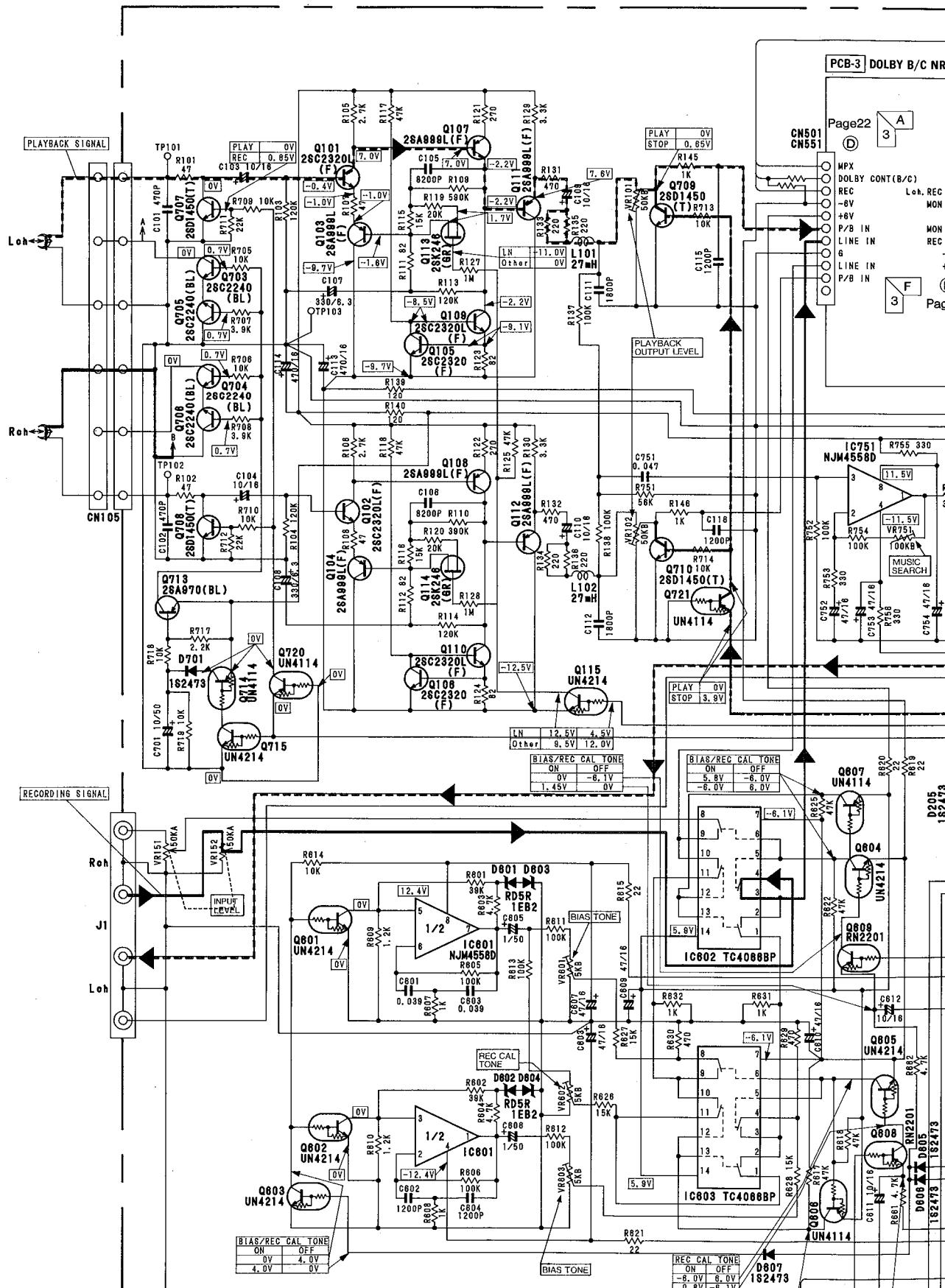
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B

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J

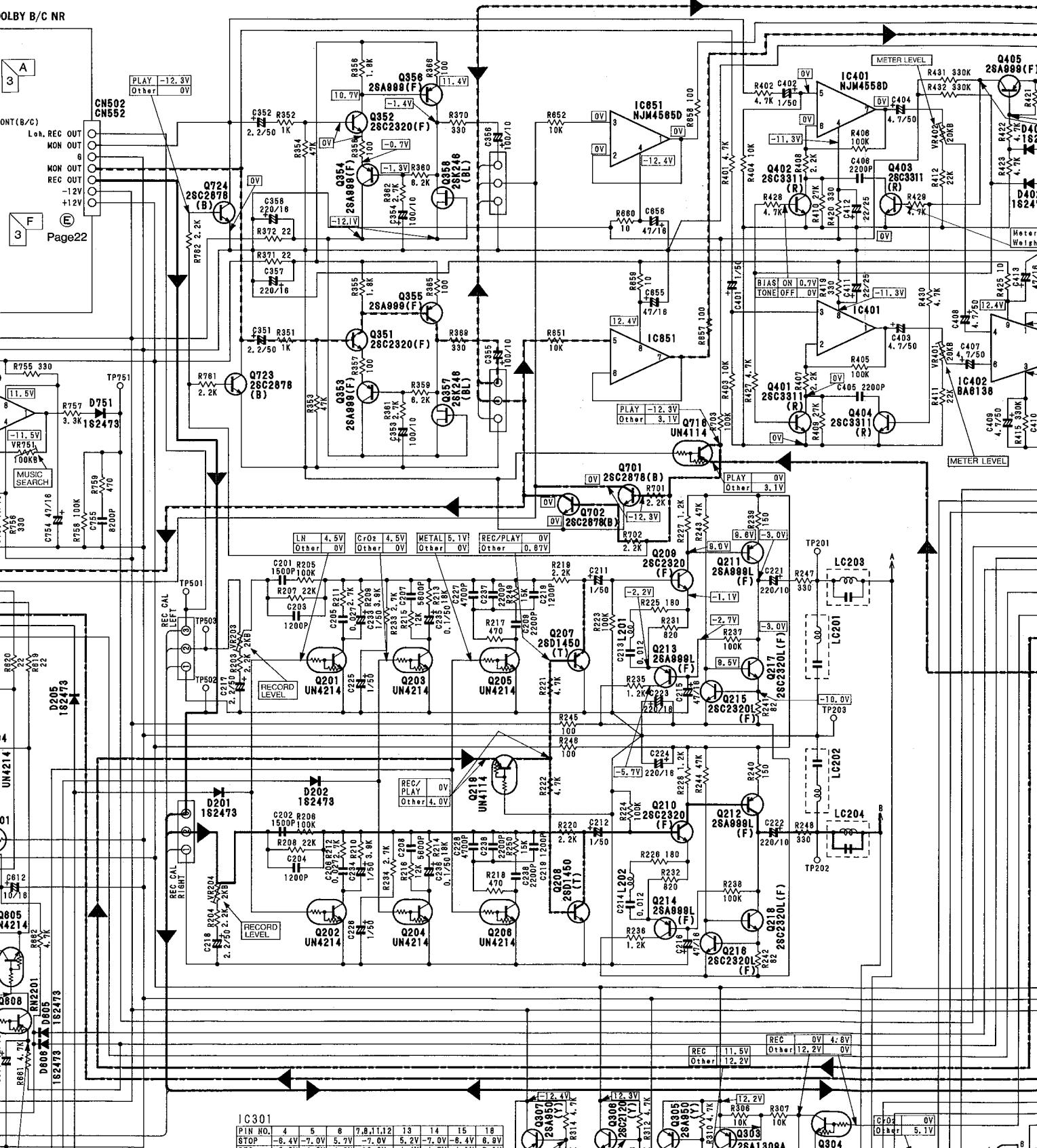
DOLBY B/C NR

A

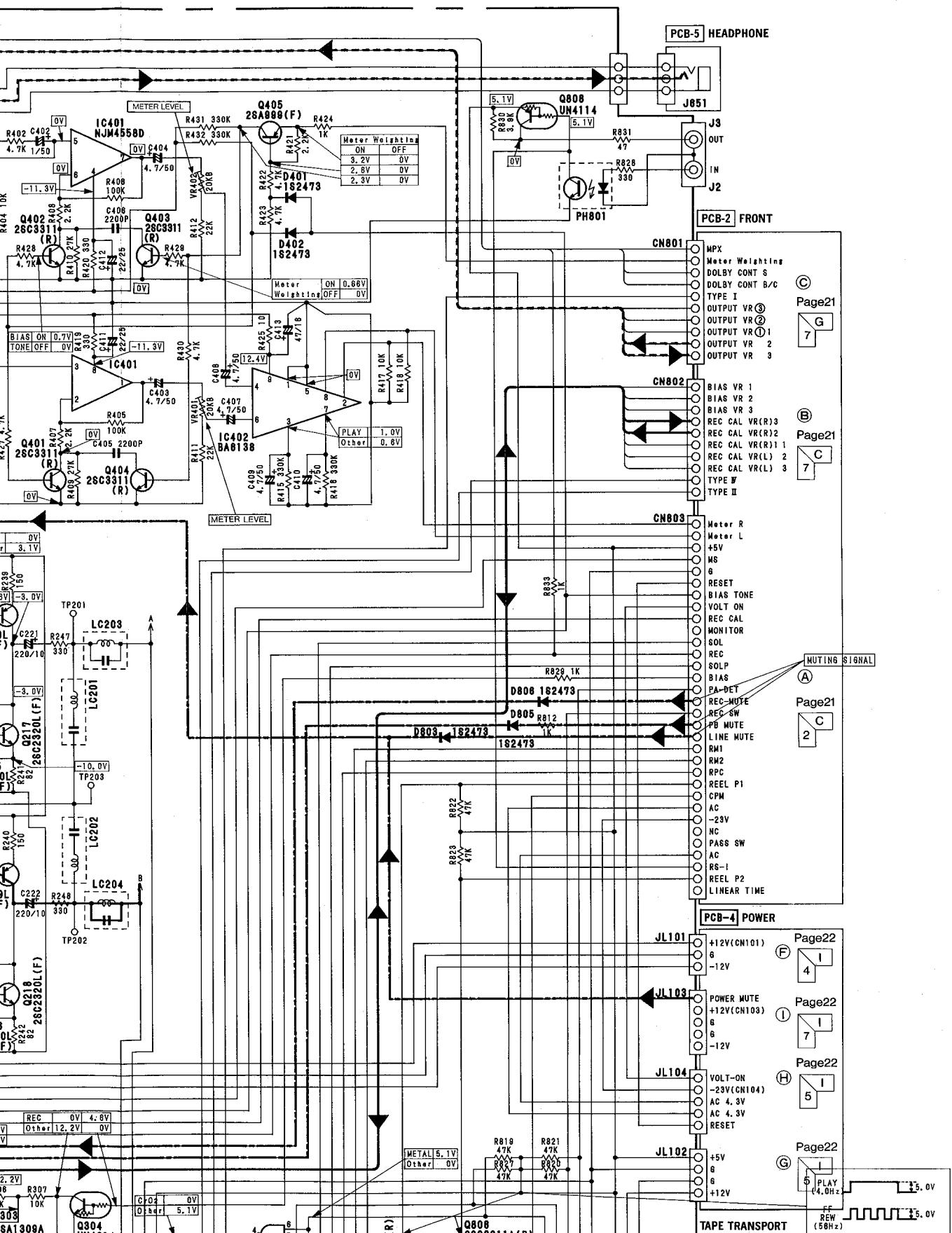
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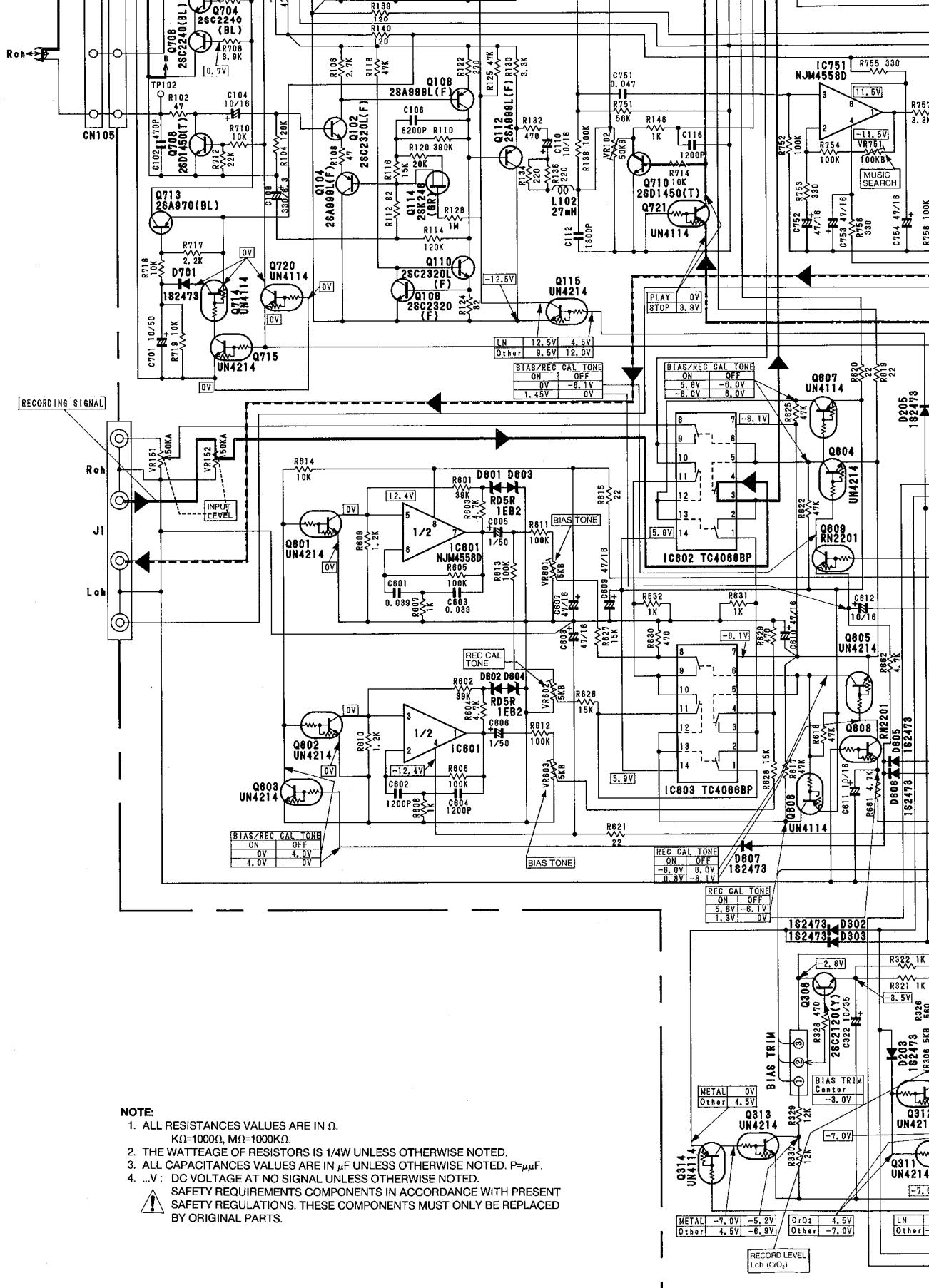
ON

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J K L M





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